JPRS 75232

29 February 1980

USSR Report

AGRICULTURE

No. 1220

FBIS FOREIGN BROADCAST INFORMATION SERVICE

NOTE

JPRS publications contain information primarily from foreign newspapers, periodicals and books, but also from news agency transmissions and broadcasts. Materials from foreign-language sources are translated; those from English-language sources are transcribed or reprinted, with the original phrasing and other characteristics retained.

Headlines, editorial reports, and material enclosed in brackets [] are supplied by JPRS. Processing indicators such as [Text] or [Excerpt] in the first line of each item, or following the last line of a brief, indicate how the original information was processed. Where no processing indicator is given, the information was summarized or extracted.

Unfamiliar names rendered phonetically or transliterated are enclosed in parentheses. Words or names preceded by a question mark and enclosed in parentheses were not clear in the original but have been supplied as appropriate in context. Other unattributed parenthetical notes within the body of an item originate with the source. Times within items are as given by source.

The contents of this publication in no way represent the policies, views or attitudes of the U.S. Government.

PROCUREMENT OF PUBLICATIONS

JPRS publications may be ordered from the National Technical Information Service (NTIS), Springfield, Virginia 22161. In ordering, it is recommended that the JPRS number, title, date and author, if applicable, of publication be cited.

Current JPRS publications are announced in Government Reports Announcements issued semimonthly by the NTIS, and are listed in the Monthly Catalog of U.S. Government Publications issued by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Indexes to this report (by keyword, author, personal names, title and series) are available through Bell & Howell, Old Mansfield Road, Wooster, Ohio, 44691.

Correspondence pertaining to matters other than procurement may be addressed to Joint Publications Research Service, 1000 North Glebe Road, Arlington, Virginia 22201.

Soviet books and journal articles displaying a copyright notice are reproduced and sold by NTIS with permission of the copyright agency of the Soviet Union. Permission for further reproduction must be obtained from copyright owner.

50272-101

REPORT DOCUMENTATION PAGE

1. REPORT NO. JPRS 75232

2.

3. Recipient's Accession No.

4. Title and Subtitle
USSR REPORT: AGRICULTURE, No. 1220

5. Report Date
29 February 1980

6.

7. Author(s)

8. Performing Organization Rept. No.

9. Performing Organization Name and Address
Joint Publications Research Service
1000 North Glebe Road
Arlington, Virginia 22201

10. Project/Task/Work Unit No.

11. Contract(C) or Grant(G) No.
(C)
(G)

12. Sponsoring Organization Name and Address
As above

13. Type of Report & Period Covered

14.

15. Supplementary Notes

16. Abstract (Limit: 200 words)

This serial report contains information on trends and policy at the national and republic levels, plans and plan fulfillment, production statistics, technological achievements and shortcomings, and agricultural investments, administration, and management. Information at lower levels is included when it is indicative of trends or innovations.

17. Document Analysis a. Descriptors
USSR
Agriculture

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group 2D, 2B

18. Availability Statement
Unlimited Availability
Sold by NTIS
Springfield, Virginia 22161

19. Security Class (This Report)
UNCLASSIFIED

20. Security Class (This Page)
UNCLASSIFIED

21. No. of Pages
53

22. Price

(See ANSI-Z39.18) See Instructions on Reverse OPTIONAL FORM 272 (4-77)
(Formerly NTIS-35)
Department of Commerce

JPRS 75232

29 February 1980

USSR REPORT

AGRICULTURE

No. 1220

CONTENTS

PAGE

Agrochemical Service and Mineral Fertilizer Plans Described
(L. M. Derzhavin; ZEMLEDELIYE, Dec 79) 1

Activities of Eastern Branch of VASKhNIL
(SEL'SKOYE KHOZYAYSTVO KIRGIZII, Dec 79) 10

Frunze Meeting, by L. Sergeyeva
VASKhNIL Activities, Historical Overview, by K. Medeubekov

Increasing Productivity in RSFSR Chernozem Area
(V. Shevchenko; SEL'SKOYE KHOZYAYSTVO ROSSII, Dec 79) 17

Experiments Compare Productivity of Various Cross Breeds of Steers
(Sh. Khamitov, et al.; SEL'SKOYE KHOZYAYSTVO KAZAKHSTANA,
Dec 79) 27

Plans of Ukrainian Grain Farmers Reviewed
(T. Arkushenko; SEL'SKAYA ZHIZN', 2 Feb 80) 30

Preparations for Sowing Campaign in Ryazanskaya Oblast
(A. Zholobov; SEL'SKAYA ZHIZN', 2 Feb 80) 32

Zonal Scientific-Production Conference Reported
(SIL'S'KI VISTI, 11 Jan 80) 34

Zonal Conference of VASKhNIL for the Ukraine and Moldavia Reported
(V. Kalyta; SIL'S'KI VISTI, 13 Jan 80) 35

Maksimenkova Reviews Late-January Weather, Crop Development
(T. Maksimenkova; SEL'SKAYA ZHIZN', 5 Feb 80) 40

Snow Retention Work in Tselinogradskaya Oblast
(V. Vasilenko, V. Vorob'yev; PRAVDA, 1 Feb 80) 42

CONTENTS (Continued) Page

Briefs

Fertilizers to Volga Ports 44
Productivity at Nekrasov Sovkhoz 44
Work in Dagestan 45
Penza Beans for Fodder 45
Vitamin Additives 45
Fertilized Fields in Tambov 45
Seed Distribution 45
Seed Storage 46
Fertilizers Effective 46
Hurricane in Yakutsk ASSR 46
Far East December Rains 46
Extreme Cold 47
Smolensk Fertilizing Work 47
Plowing Snowy Fields 47
High-Yield Seeds 47
Preparing High-Yield Seeds 48
Snow Retention Work 48
Omskoya Oblast Sowing Campaign 48
Winter Moisture Retained 48
Kazakhstan Millet Crop 49
Snow Plowing Work 49
Contribution by Plant Breeders 49
Preparation of Seed 49
Soil Fertility Improvement Work 50
First Class Seed Deliveries 50
Snow Retention Operations 50
New Varieties of Crops 51
New Regionalized Varieties 51
New Winter Wheat Variety 51

AGROCHEMICAL SERVICE AND MINERAL FERTILIZER PLANS DESCRIBED

Moscow ZEMLEDELIYE in Russian No 12, Dec 79 pp 2-5

[Article by L. M. Derzhavin, director of the Central Institute for Agrochemical Services in Agriculture: "The Development of Agrochemical Services"]

[Text] Extensive utilization of fertilizers and other chemical means is the most effective and economically expedient approach to the intensification of agricultural production and is a powerful factor in raising labor productivity and in lowering production costs. The importance of the use of chemicals in agriculture is increasing with each passing year.

Domestic and foreign experience bears witness to the fact that through the use of fertilizers on highly productive types of agricultural crops and through other means of intensifying production, the crop yields in the developed countries have grown by a factor of 2 to 3 during the last 20 to 30 years. Fertilizers have played a leading role in this growth. With correct application they not only increase the crop yield but also improve its quality.

According to scientific calculations, not less than half of the growth in agricultural crop yields in the USSR is due to fertilizers. According to the data of N. N. Mikhaylov, the share of the growth in crop yield in the nonchernozem area which is due to fertilizer is 60 percent, in the forest steppe area it is 40 percent, in the wet steppe area it is 15 percent, in the dry steppe area it is 10 percent and in the irrigated steppe area it is 40 percent. According to the data of the American scientist E. O. Hedy and the Canadian economist O. L. Awer, fertilizers accounted for an average of 41 percent of the growth in the wheat harvest in the United States during the period 1939 through 1960, 35 percent for corn, 65 percent for oats, 49 percent for barley, 17 percent for sorghum, 29 percent for soy beans, 25 percent for cotton (fiber) and 62 percent for grasses for hay.

It is therefore not a coincidence that the entire world has taken the course of extensive production and application of mineral fertilizers. During the 1976-77 agricultural year, the utilization of fertilizers in the world amounted to 94,645,000 tons of nutrients (45,088,000 tons of nitrogen, 26,493,000 tons of phosphorus and 23,064,000 tons of potassium), that is, it grew in comparison with the average level for the period 1961-62 through 1965-66 by a factor of 2.5, including growth in the utilization of nitrogen by a factor of 3, phosphorus by a factor of 2.1 and potassium by a factor of 2.5.

According to the predictions of the FAO, worldwide utilization of nitrogen (N) fertilizers during the 1979-80 year is expected to amount to 54,190,000 tons, 31,480,000 tons of phosphorous (P_2O_5) fertilizers and 26,650,000 tons of potassium (K_2O) fertilizers; during 1980-81 the amounts are 57,380,000, 33,290,000 and 27,990,000 respectively and during 1981-82 the corresponding amounts are 60,660,000, 35,400,000 and 29,280,000 tons.

By the year 2000 the worldwide utilization of mineral fertilizers will amount to 307,200,000 tons of nutrients including 170,000,000 tons of nitrogen (N), 70,000,000 tons of phosphorous (P_2O_5) and 60,000,000 tons of potassium (K_2O).

The fertilizer industry in the USSR is developing very rapidly and occupied first place in the world production of mineral fertilizers in 1973. In 1978 we produced 23,600,000 tons of mineral fertilizers calculated on the basis of 100 percent content of nutrients ($N + P_2O_5 + K_2O$), or 121 percent of the production volume in the United States (19,500,000 tons), as opposed to 7,400,000 tons in 1965.

In 1980 the production volume of mineral fertilizers in our country will reach 33,000,000 tons of nutrients. Their yearly growth during the 10th Five-Year Plan will amount to about 2,500,000 tons. By 1980 the share of nitrogen fertilizers in the total production volume of fertilizers will be about 40 percent, phosphorous fertilizers will be 26 percent and potassium fertilizers will be 34 percent. In addition, in the future in the USSR the percentage of phosphorous in fertilizers is projected to be increased, and by 1990 the proportion $N:P_2O_5$ will reach 1:1 since, according to the data of the agrochemical services, nearly half of the cultivated land in our country is characterized by low levels of available phosphorous.

During the current five-year period the expenditures by agriculture on acquiring, transporting, storing and applying mineral fertilizers and other chemical agents will amount to approximately 50 billion rubles as opposed to 23.3 billion rubles during the preceding five-year period. During the years 1976-1980 agriculture in our country will be provided with an estimated 467,000,000 tons of mineral fertilizers, 235,600,000 tons of calcium materials and an estimated 2,600,000 tons of pesticides. The volume of organic fertilizers utilized during the 10th Five-Year Plan has reached nearly 4 billion tons or 25 percent more than during the preceding period.

In 1978 there were 18,423,000 tons of mineral fertilizer nutrients delivered to agriculture in our country as compared with 6,273,000 tons in 1965.

In accordance with the decisions of the July (1978) Plenum of the CPSU Central Committee, the delivery of mineral fertilizers to agriculture in 1985 will reach 135 to 140 million tons expressed in standard units as opposed to 78,999,000 tons in 1978. The delivery of chemical melioratives, pesticides and other chemical agents to agriculture during the coming Five-Year Plan will grow sharply.

The application of organic fertilizers during the coming Five-Year Plan will reach 923 million tons (including 177 million tons of peat) as compared with 469 million tons (including 106 million tons of peat) in 1965.

The increase in volume of fertilizer deliveries to agriculture has made it possible to increase the land area being fertilized as well as the amounts of fertilizer utilized. Throughout the country in 1978 the average application for cotton was 433 kilograms of nutrients per hectare on 99.6 percent of the planted area, for sugar beets it was 483 kilograms (99.4 percent), for grain crops it was 51 kilograms (54 percent), for corn for grain it was 180 kilograms (94 percent) and for potatoes it was 287 kilograms per hectare on 94 percent of the planted area.

The results of the data from the field experiments of the agrochemical service for 1965 to 1976 show that with optimum levels of fertilizer application in various areas of the country one kilogram of nutrients (N, P_2O_5 and K_2O) produces an additional yield of grain crops amounting to 2.0 to 7.3 kilograms, for potatoes it is 17.7 to 26.5 kilograms, for sugar beets it is 20.3 to 37.5 kilograms and for long-stemmed flax (straw) the additional yield is 4.4 to 5.7 kilograms (Table 2).

The share of the crop yield due to mineral fertilizers and the share of the additional crop yield due to individual types of fertilizers (nitrogen, phosphorous and potassium) are different for the various zones and crops.

Production experience indicates that the greatest effect from fertilizers is achieved by farms with high standards of cultivation, where there is high quality use of chemicals and where the scientifically established amounts, time periods and methods of application recommended by the agrochemical service are observed.

The State Agrochemical Service was established in the USSR in 1964 for organizing the scientific utilization of fertilizers, chemical melioratives and other chemical means for agriculture. This service is based on 205 republic, kray and oblast agrochemical laboratories and planning and research stations for the use of chemicals which are located in the primary soil and climatic regions of the country. On the average each laboratory (station for the use of chemicals) is responsible for approximately 250 farms with 2.7 million hectares of agricultural lands, including 1.1 million hectares of plowed fields. The agrochemical service was charged with the research and consultative work involving problems of the agricultural use of chemicals.

Table 1

(1) Поставка минеральных удобрений и урожайность основных сельскохозяйственных культур в СССР

(2) Годы	(3) Поставка минеральных удобрений (кг д. в. на 1 га пашни в среднем за год)	(11) Урожайность в среднем за год (ц/га)						
		(4) зерновые	(5) хлопчатник (хлопок-сырец)	(6) сахарная свекла (фабричная)	(7) подсолнечник	(8) лен (волокно)	(9) картофель	(10) овощные
1909—1913	0.21*	6.9	13.0	150	—	2.8	78	—
1946—1950	7.3**	6.7	13.6	111	4.5	1.6	97	73
1951—1955	9.5***	8.0	16.9	154	6.2	1.7	81	87
1956—1960	11.4	10.1	20.1	184	9.1	2.6	94	101
1961—1965	18.7	10.2	20.6	165	11.2	2.6	94	115
1966—1970	38.3	13.7	24.1	228	13.2	3.4	115	133
1971—1975	62.1	14.7	27.3	217	13.2	3.7	113	138
1976—1979	79.6	17.0	28.5	254	12.0	3.8	120	152

(12) * за 1913 год
** за 1950 год
*** за 1955 год

Key:

1. Mineral fertilizer supply and yields of basic agricultural crops in the USSR
2. Years
3. Mineral fertilizer supply (kilograms applied to 1 hectare of cultivated land, average per year)
4. Grain crops
5. Cotton (raw cotton)
6. Sugar beets (industrial)
7. Sunflowers
8. Flax (fiber)
9. Potatoes
10. Vegetable crops
11. Average crop yield per year (quintals per hectare)
12. For 1913, for 1950, for 1955

Table 2

(1) Эффективность минеральных удобрений в СССР по данным полевых опытов агрохимслужбы за 1965—1976 годы

(2) Культура	(3) Нормы удобрений (кг/га питательных веществ)	(4) Урожай после применения удобрений (ц/га)	(5) Прибавка урожая от удобрений (ц/га)	(6) Долевое участие удобрений в урожае (%)	(7) Долевое участие видов удобрений в прибавке урожая (%)			(8) Оплата 1 кг питательных веществ прибавкой урожая (кг)	(9) Число опытов
					N	P_2O_5	K_2O		
(10) Озимая пшеница	145—264	23.7—39.5	5.6—11.9	16.4—38.2	20.7—64.3	17.3—34.1	0—25.2	2.8—5.9	2401
(11) Озимая рожь	194—273	19.9—29.7	4.4—11.3	22.7—44.6	35.4—55.2	12.3—50.1	14.8—37.9	2.1—4.7	823
(12) Яровая пшеница	45—255	12.5—28.8	1.6—11.1	10.1—49.7	0—73.9	17.6—100.0	0—23.9	2.0—4.4	1354
(13) Ячмень	150—245	20.8—37.7	3.7—17.4	15.4—36.6	22.7—54.9	14.1—63.0	10.4—30.9	1.9—5.3	1119
(14) Кукуруза на зерно	160—290	33.4—56.0	6.7—21.1	17.7—39.4	34.9—54.7	25.0—48.7	7.0—26.3	3.3—7.3	326
(15) Картофель	260—360	156—276	46—89	26.9—48.0	28.8—46.8	21.8—42.9	22.8—42.3	17.7—26.3	1463
(16) Сахарная свекла	240—360	244—495	55—135	15.4—34.6	29.0—52.9	25.6—54.5	11.3—36.3	20.1—37.5	1471
(17) Лен-долгунец	190—255	33.7—44.9	11.2—14.6	27.4—37.1	23.7—53.1	20.1—54.7	2.1—45.6	4.4—5.7	493

Key:

1. Effectiveness of mineral fertilizers in the USSR according to field experiment data of the agrochemical service for 1965 to 1976
2. Crop
3. Amounts of fertilizer (kilograms of nutrients per hectare)
4. Crop yield with the application of fertilizers (quintals per hectare)
5. Additional crop yield due to fertilizers (quintals per hectare)
6. Share of crop yield due to fertilizers (%)
7. Share of the additional crop yield for each type of fertilizer (%)
8. Additional crop yield produced by one kilogram of nutrients (kilograms)
9. Number of experiments
10. Winter wheat
11. Winter rye
12. Spring wheat
13. Barley
14. Corn for grain
15. Potatoes
16. Sugar beets
17. Long-stemmed flax

The agrochemical laboratories conduct surveys of agricultural lands, analyses of soils, fertilizers, plants and feeds, field experiments for studying the effectiveness of various amounts and combinations of fertilizers on [illegible] and meadow fields with subsequent development and dissemination to the farms of corresponding recommendations for efficient utilization of fertilizers and feeds, put scientific recommendations into production and supervise the correct utilization of chemicals.

During the period 1964 to 1978 the agrochemical laboratories conducted agrochemical surveys of [illegible] million hectares (including secondary surveys) of agricultural lands (plowed fields, perennial plantings, hay fields and pastures) to determine the amount of nutrients in the soil available to plants and its acidity (in regions of extensive acid soils), including [illegible] million hectares of plowed lands (with allowance made for secondary surveys). In a number of rayons and republics the arable lands were examined 3 to 4 times.

More than [illegible],000 field experiments with fertilizers were conducted, [illegible] million soil analyses were made, 20 million analyses of feed quality, [illegible] million analyses of [illegible] quality, 1.3 million analyses of mineral fertilizer quality, [illegible],000 analyses of calcium material quality, more than [illegible] million analyses of organic fertilizer quality and 1.8 million analyses of the quality of peat delivered to agriculture were made. With the goal of protecting the surrounding environment from pollution, the State Agrochemical Service constantly checks the amount of toxic chemical residues and other chemical agents in the soil and plants.

Data from the agrochemical soil surveys and field experiments with fertilizers provide the scientific basis for development by the agrochemical service of [illegible] recommendations and planning estimates for the utilization of fertilizers and chemical melioratives and for determining the requirements and distribution of fertilizers and calcium and gypsiferous materials at all levels of agricultural production management. Computers are used extensively in the agrochemical service for these purposes. Being introduced at the present time is the system for automated management of the use of chemicals in agriculture (ASU-agrochemical) developed by the Central Institute for Agrochemical Services in Agriculture, which makes it possible to solve management problems in the use of chemicals in agricultural production more efficiently and precisely while simultaneously greatly reducing manual labor.

Farms in our country now have scientifically established recommendations developed jointly by the agrochemical service for the utilization of fertilizers, taking into account the nutrients available to plants in specific fields and parcels and the planned crops and fertilizer resources.

The data from the feed quality analyses carried out by the agrochemical service provide the basis for developing recommendations for their efficient utilization on the farms, for determining the requirements and distribution of chemical feed additives and for improving feed production methods.

The utilization of fertilizers and other chemicals according to the recommendations of the agrochemical service, which are developed taking the latest achievements of domestic and foreign science into account, makes it possible to sharply increase their effectiveness, to improve the quality of agricultural production and does not permit pollution of the environment by pesticide and other chemical residues.

Alongside the specific accomplishments achieved in our country in the use of chemicals in agricultural production, there are still many shortcomings which lower the effectiveness of the utilization of chemicals.

As was noted in the report by Comrade L. I. Brezhnev at the July (1978) Plenum of the CPSU Central Committee, many kolkhozes and sovkhozes permit large losses and even deterioration of fertilizers, and the scientific recommendations for their utilization are not followed. One of the causes of such a situation is the lack in our country of a unified, scientifically organized system of agrochemical service. The work involved in the use of chemicals is carried out directly by the farms, the interfarm associations, specialized subunits of the State Committee for Agricultural Technology and by other ministries and departments.

In furthering the decisions of the July (1978) Plenum of the CPSU Central Committee "On Further Development of USSR Agriculture," the CPSU Central Committee and the USSR Council of Ministers adopted the decree "On Creation of a Unified, Specialized Agrochemical Service in the Country," in which the basic directions were established for its operation, method of improvement and organizational structure.

In accordance with this decree the All-Union Production and Scientific Association for Agrochemical Service in Agriculture ("Soyuzsel'khozkhimiya") was organized within the system of the USSR Ministry of Agriculture. Republic production and scientific associations for agrochemical service are organized on a farm basis and are directly subordinated to the ministries of agriculture of the union republics. Production associations for agrochemical service in agriculture are created in the autonomous republics, krays and oblasts as well as on a farm basis, and rayon (interrayon) production associations for agrochemical service in agriculture are created in the rayons. Farm (interfarm) chemical-use stations are being organized directly on the kolkhozes and sovkhozes, which must carry out the basic work for the use of chemicals in agricultural enterprises.

The All-Union Production and Scientific Association for Agrochemical Service in Agriculture and the Production and Scientific Associations for Agrochemical Service in Agriculture ("Sel'khozkhimiya") in the union and autonomous republics, krays and oblasts as well as the rayon (interrayon) associations of "Sel'khozkhimiya" and the enterprises, institutions and organizations subordinate to them comprise the unified system of the "Soyuzsel'khozkhimiya" association.

In order to carry out the production and scientific tasks, the following scientific institutions are placed in direct subordination to the "Soyuzsel'khozkhimiya" association: the Central Institute for Agrochemical Services in Agriculture (TsINAO) with the network of affiliates and with the Central Experimental Research and Design Technology Laboratory for the Use of Chemicals in Agriculture (TsKLKhIM), the scientific and production association "Agropribor," the Central Experimental Design Technology Laboratory for the Utilization of Liquid Ammonia (TsELAZh), the Central Scientific Research Laboratory for Forecasting the Development of Plant Pests and Diseases and the All-Union Scientific Research, Design and Technological Institute for the Equipment and Economics of Storing, Transporting and Mechanized Soil Application of Mineral Fertilizers.

The scientific research and design organizations which work in the area of the use of chemicals in agriculture are transferred to the "Sel'khozkhimiya" associations of the union republics, and the regional (oblast, krai and republic) agrochemical laboratories, design and research stations for the use of chemicals and the plant protection stations are transferred to the (oblast, kray, autonomous republic) "Sel'khozkhimiya" associations.

The "Soyuzsel'khozkhimiya" association has been given all responsibility for scientific utilization of mineral and organic fertilizers, chemical and biological means of protecting plants, soil melioratives, feed additives, growth stimulants and chemical agents in agricultural enterprises and for the development of yearly, five-year and long range draft plans for the economic and social development of the use of chemicals in agriculture, including the requirements of agricultural enterprises for chemical agents and equipment for their utilization.

The associations must also carry out the work of supplying the agricultural enterprises with the means of using chemicals, must maintain contact between the consumers and the supply plants and must supervise the timeliness of the calculations for the chemical product being supplied. "Soyuzsel'khozkhimiya" is charged with organizing the extraction of peat and of local calcium and gypsiferous materials, increasing the fertility of the soil on the farms according to agreements, chemically improving the soil, fertilizer mixing, delivering and applying mineral and organic fertilizers to the soil, treating plantings with chemical and biological agents for protecting the plants, providing agricultural aviation, organizing chemical use stations and developing interfarm cooperation in the construction of production base sites for the use of chemicals.

In addition to the production work, the "Soyuzsel'khozkhimiya" association must also conduct consultative work (soil and agrochemical soil research, analyses of fertilizer, plant and feed quality and the development and distribution to the farms of planning estimates concerning the effective utilization of chemicals in cultivation, animal husbandry and feed production), develop and put in operation in the organizations within its control economic and mathematical methods and automated management systems for agrochemical service, provide supervision for the strictest observance on the farms of the established regulations for the utilization of pesticides, for the quality and timeliness of the delivery of chemical agents to agriculture, for the reliability of record keeping and accounting of their use on the farms and for the observance by all land users of the measures for protecting the environment from pollution by pesticides and fertilizers. The association is also responsible for organizing the training and retraining of specialists and personnel of the mass professions in the use of chemicals in agriculture and in the protection of plants.

Putting into practice the decree adopted by the CPSU Central Committee and the USSR Council of Ministers "Concerning Creation of a Unified, Specialized Agrochemical Service in Our Country," will make it possible to sharply improve the utilization of mineral fertilizers, pesticides and other chemical agents in agriculture, to improve the corresponding measures for protecting the environment from pollution by pesticide and other toxic chemical residues and to raise the crop yield and the quality of agricultural production.

COPYRIGHT: Izdatel'stvo "Kolos", "Zemledeliye", 1979

11,220
CSO: 1824

ACTIVITIES OF EASTERN BRANCH OF VASKhNIL

Frunze Meeting

Frunze SEL'SKOYE KHOZYAYSTVO KIRGIZII in Russian No 12, Dec 79 p 24

[Article by L. Sergeyeva: "Meeting of the Eastern Branch of VASKhNIL"]

[Text] In September of this year in the city of Frunze the regular visiting meeting of the Presidium of the Eastern Branch of the All-Union Academy of Agricultural Sciences imeni Lenin (VASKhNIL) took place. Participants in the meeting included the deputy minister of agriculture of the Kazakh SSR and candidate of economic sciences G. Kurmanov, the deputy chairman of the Presidium of the Eastern Branch of VASKhNIL and VASKhNIL academician Yu. Aykev, the director of KazNIIZ [Kazakh Scientific Research Institute of Grain Farming] and corresponding member of VASKhNIL V. Abugaliyev, the director of the KazNII of Potato and Vegetable Farming and corresponding member of VASKhNIL L. Bobrov, the director of KazNIII [Kazakh Scientific Research Technological Institute] of Livestock Farming and corresponding member of VASKhNIL V. Vernigor, the scientific secretary of the Presidium of the Eastern Branch of VASKhNIL and candidate of biological sciences T. Nurmuratov, the minister of agriculture of the Kirgiz SSR and candidate of agricultural sciences S. Tursunov, the vice president of the Academy of Sciences of the Kirgiz SSR and academician of VASKhNIL A. Mamytov, the general director of KirgNPOZ [Kirgiz scientific production association of farming] and candidate of economic sciences N. Aytiyev, and the director of the KirgNITIPF [Expansion unknown] and candidate of economic sciences M. Ismankulov and others.

The topic under discussion was entitled, "On the Course of Fulfillment of the Resolution of the Central Committee of the CPSU and the USSR Council of Ministers, 'On Measures to Further Improve the Effectiveness of Agricultural Science and on Strengthening its Ties to Production.'"

In opening the meeting the chairman of the Presidium of the Eastern Branch of VASKhNIL and corresponding member of VASKhNIL K. Medetbekov noted the great contribution to science made by Kirgiz scientists. They have made a special contribution to improving the quality of farming and to developing highly productive livestock farming.

A. Tursunov spoke about the development of agricultural science in Kirgiziya and about its achievements and the introduction of progressive developments into production.

A. M. Mamytov discussed the problems related to the efficient utilization of the soil cover in our republic, the improvement of fertility of solonetz lands in the Chuyskaya Valley and the improvement of eroded soils in the pastures of the Issyk-Kul'skaya and Ak-Sayskaya syrts.

General director K. Azykov spoke about the activities of the scientific production association of farming and about its achievements.

In its resolution the Presidium of the Eastern Branch of VASKhNIL approved the activities of KirgNPOZ, KirgNPOZh [Kirgiz Scientific Production Association of Livestock Farming], KirgNIPIPK and the All-Union NPO [Scientific-Production Association], Soyuzvodavtomatika [Expansion unknown], to fulfill the resolution of the Central Committee of the CPSU and the Council of Ministers, "On Measures to Further Raise the Effectiveness of Agricultural Science and to Strengthen Its Ties to Production."

COPYRIGHT: Izdatel'stvo "Ala-Too", 1979

VASKhNIL Activities, Historical Overview

Alma-Ata SEL'SKOYE KHOZYAYSTVO KAZAKHSTANA in Russian No 12, Dec 79 pp 16-17

[Article by K. Medeubekov, acting vice president of VASKhNIL, chairman of the Presidium of the Eastern Branch of VASKhNIL: "Bureau of Agricultural Science"]

[Text] On 25 June 1929 the Council of People's Commissars of the USSR passed a resolution on organizing the All-Union Academy of Agricultural Sciences imeni V. I. Lenin. A great and glorious road has been travelled in half a century. Since its initial activities the academy has been a creative and organizational force in agricultural science. It has participated most actively in those grandiose socio-economic transformations of agriculture which transpired in our country under the leadership of the Communist Party. The scientific collectives of VASKhNIL were the first in the world to develop the basic principles of managing large-scale socialist agricultural production. These are now used as the basis of the activities of the country's sovkhozes and kolkhozes. In the years that the academy has been in existence scientists have dealt with the urgent tasks that have been set by the party and state for agriculture. They have encouraged the implementation of Leninist agricultural policies.

The socialist society has created unlimited possibilities for the genuine blossoming of talent. As a result many scientists have made a large contribution to native and world science, have written many bright pages about the theory and practice of farming and livestock farming. We are proud of our fellow-countrymen academicians K. A. Timiryazev, I. V. Michurin, D. N. Pryanishnikov, V. V. Dokuchayev, V. R. Vil'yams, [illegible], P. [illegible], [illegible], [illegible], [illegible], [illegible] Konstantinov, [illegible], [illegible], [illegible], [illegible], [illegible], [illegible], [illegible], [illegible], [illegible], and many others. Many prominent Soviet scientists were raised on their fundamental works.

Today VASKhNIL is the largest institution in the world. It includes 121 scientific-research institutes, which work out the most important problems, which [illegible] set by the XXVI CPSU Congress and by decisions of subsequent Plenums of the CPSU Central Committee on the intensive development of agricultural production and its transition to a modern industrial base. On [illegible] experimental enterprises of the Academy scientists [illegible] new varieties of agricultural crops, breeds and groups of breeds of animals, [illegible] technology and conduct large-scale experiments.

At the present time the Academy has 114 full members (academicians), [illegible] corresponding members and 26 foreign members, 7 regional divisions. These have the responsibility of managing and coordinating research of scientific institutions in the service zone regardless of their departmental subordination.

The Eastern Branch of VASKhNIL, which realizes the scientific-methodological management and coordination of research on agriculture, water and forest management in the Kazakh SSR and the Kirgiz SSR, has 11 subordinate scientific-research institutes and 16 subordinate experimental enterprises. In general agricultural science in Kazakhstan and Kirgiziya is represented by 16 scientific-research institutes, four affiliates and four experimental stations of the all-union NII, 15 state oblast and several selection and zonal experimental stations. In addition a number of institutes of the Kazakh SSR and Kirgiz SSR academy of sciences conduct research on the scientific bases of agricultural production. Scientists of agricultural vuzes also work fruitfully on solving many agricultural problems.

The scientific-research institutions of the region employ over [illegible],000 persons, including 1,850 scientific workers of whom 32 are doctors of science and 700 are candidates of science. In addition, considerable scientific force is concentrated in the academies of science of the Kazakh SSR and Kirgiz SSR, in agricultural vuzes and in affiliates and experimental stations of all-union scientific-research institutes.

In 1956 the Kazakh affiliate of the All-Union Academy of Agricultural Sciences imeni V. I. Lenin was organized to manage scientific research in the republic. Beginning at this time important scientific-research work and [illegible] on numerous aspects of agricultural development in the republic were realized under the direct management and with the methodological and practical aid of VASKhNIL--the bureau of agricultural science of the country.

As a result of the wise agrarian policies of the Communist Party agriculture in the republic is developing harmoniously and at a rapid pace.

The workers of fields and farms are completing intensive labor operations in the fourth year of the 10th Five-Year Plan. The average annual production of grain during the current five-year plan has exceeded 2[illegible] million tons. Kazakhstan sold the state over 1 million poods of grain three times. The labor achievements of livestock farmers in the republic are also noteworthy. The number and productivity of animals have grown significantly.

At the present stage, as written in the decisions of the 25th Congress of the CPSU, science has become a direct production force and its role continues to grow. New and greater demands are being placed on scientists and this is fully justified. Scientific-technical progress is ceaseless and its course is accelerating; that which was satisfactory yesterday becomes insufficient today and especially tomorrow. It would be unthinkable to solve agricultural tasks, which are growing in scale and complexity, without the most active participation of science.

For this reason a large role in improving agriculture will be played by science, which has enriched production with new varieties and hybrids of agricultural crops, breeds of animals and fowl, with economic technologies for the production of farm and animal products.

Kolkhozes and sovkhozes are broadly utilizing scientifically-developed systems of agricultural management for various zones in the republic, recommendations on improving the forms of organization of labor and management, on production specialization and concentration and on raising the economic effectiveness of production. In the final analysis all of this will materialize in additional millions of tons of grain, meat, milk and other agricultural products.

A great scientific achievement is the development and introduction into production of a soil-conservation system of farming that is based on the sweep cultivation of soil, the assimilation of 4-5 field grain-fallow crop rotations with clear windbreak strips, the fertilization of fallow with superphosphate and on other methods. This farming system is being used successfully in the steppe rayons of Northern Kazakhstan, Western and Eastern Siberia, Altayskiy Kray, Povolzh'ye, the Northern Caucasus and the southern Ukraine. It not only protects from wind erosion but also increases productivity and enables farmers to produce big and stable harvests. This is attested to by the weighty grains of workers in the virgin lands during the very difficult weather conditions of this year. The basic method of soil conservation farming is sweep cultivation, which in 1979 was introduced in our republic on about 19 million hectares and in the country--on about 34 million. This is one-third of the arable land in the USSR that is in danger of erosion.

The economic effectiveness of this system reaches over 500 million rubles annually. A group of scientists of the All-Union NII of Grain Farming headed by academician A. I. Barayev was awarded the Lenin Prize for developing a soil conservation system of farming.

The Kazakh NII of Farming has developed and introduced into production a complex of agrotechnical methods which ensure [illegible] yields of wheat, corn, sugar beets and [illegible] cultivated in [illegible] conditions. Research is continuing and [illegible] to perfecting the means and methods for [illegible] harvests of wheat, corn, sugar beets and [illegible]. [illegible] the following [illegible] for grain—[illegible] quintals per hectare; [illegible] sugar beets [illegible] and winter wheat—[illegible] quintals per hectare.

[illegible] that a good variety is the basis for efficient farming. As a result of [illegible] that have been taken in recent years there has been more [illegible] new highly productive varieties of agricultural crops.

The varieties of the All-Union NII of Grain Farming are being used more [illegible]. The sowing area of spring wheat Shortandinskaya-[illegible] has been expanded. The spring wheat varieties Tselinnaya-20 and Tselinnaya-[illegible] have been regionalized in Tselinogradskaya, Kokchetavskaya and [illegible] oblasts. Spring barley Tselinnyy-[illegible] has been regionalized in [illegible], Tselinogradskaya, [illegible], Severo-Kazakhstanskaya and [illegible] oblasts. The Tselinogradskaya-[illegible], Karabalykskaya-40, and [illegible] spring wheat varieties, three varieties of spring barley, two varieties of millet and one variety of foxtail millet are undergoing state variety testing.

During [illegible] the [illegible] of the Kazakh NII of Farming have developed the following [illegible]: four varieties of winter wheat (Alma-[illegible], [illegible], [illegible], Predgornaya-[illegible]), two varieties of spring wheat ([illegible] and [illegible]), two varieties of spring barley ([illegible] and [illegible]-Kazakhstanskiy-[illegible]), four [illegible] and hybrid corn populations (yellow [illegible] Kazakhstanskaya [illegible], [illegible] Kazakhstanskaya [illegible], Tselinnyy [illegible] and Kazakhstanskaya-[illegible] (V)).

In recent years the following varieties have been regionalized: four varieties of wheat (Kazakhstanskaya-4, Krasnovodopadskaya-210, [illegible], Shortandinskaya-[illegible]), hybrids and hybrid populations of corn ([illegible], Kazakhstanskaya-5-4, Tselinnyy-2-TV) sugar beets (Kazakhskaya [illegible]) and soy ([illegible] and Kazakhstanskaya-200).

[illegible] center on feed crops of the Kazakh NII of Meadow and Pasture Farming has submitted five varieties for state variety testing: Predgornaya [illegible], Zasukhoustovchivyy sainfoin, Intensivnyy awnless brome grass, [illegible] meadow fescue and Aydarlinskiy [illegible]. During the past [illegible] years of the 10th Five-Year Plan three varieties of feed crops have been regionalized: [illegible]-1 sainfoin, Krasnovodopadskiy-414 wheatgrass and [illegible] narrow-eared wheatgrass.

There has been an acceleration of work to create highly productive varieties of vegetable-melon crops and potatoes. Potato varieties Gornyy, [illegible] and [illegible] are undergoing state variety testing. In recent years the sowing area of the new potato variety, Shortandinskiy, has been expanded.

Scientists have made a significant contribution to the qualitative transformation of livestock farming. Prior to the revolution it was represented by low-productivity local breeds. By utilizing progressive methods of selection scientists as well as specialists and practical workers were able to develop highly productive breeds of agricultural animals that were adapted toward reproduction in various natural-climatic zones of the republic. At the present time the kolkhozes and sovkhozes raise the Kazakh White-Faced, Alatau and Aulie-Ata breeds of cattle; of sheep--the Kazakh Fine-Fleeced, the Arkharomerino, the Southern Kazakh Merino and the Northern Caucasus Merino; as well as new breeds of horses (Kustanayskaya, Kushumskaya) and hogs (Kazakhskaya Black Spotted and Semirechenskaya).

Scientific institutions are developing and introducing a progressive, economically effective technology for producing animal products.

The July 1978 Plenum of the Central Committee of the CPSU set the goal of significantly increasing the output of animal products. In reaching this goal a large role will be played by Kazakhstan because the republic raises over half of the meat cattle and over 25 percent of the sheep in the country. Here there is a broad network of pedigree and commercial enterprises as well as extensive pastures.

Scientific-research institutions on livestock farming have conducted a great deal of research on selection and breeding. Work is being done to improve the Red Steppe, Simmental, Alatau and Black Spotted cattle breeds for dairy purposes. Recommendations have been worked out on raising heifers in order to obtain feed of the desired type so that the animals can be raised under the conditions found in complexes.

In meat livestock-farming pure-breed and mixed herds of cattle have been created--Kazakh White-Faced, Galloway and Santa Gertrudis. In recent years five new lines of Kazakh White-Faced have been approved in the Balkashinskiy and Chaldayevskiy Breeding Plants.

In addition to improving existing breeds in the area of sheep-raising in recent years improved curly-haired sheep have been developed--the Degeresskaya breed group with semi-fine wool and the Kargalinskaya breed group with semi-coarse wool. In consideration of the great demand by industry for cross-breed wool scientists have begun extensive work to create rapidly-maturing breeds of sheep for meat-wool purposes yielding cross-breed wool and high-quality mutton.

Significant work is being done to develop and introduce progressive technology for producing animal products on an industrial basis enabling farmers to raise milk yield and weight gain and to increase the sales of meat, milk, wool and other products.

Certain positive shifts in livestock-raising in the republic became possible because of the significant efforts to strengthen the feed base. Scientific institutions have developed many progressive technologies for the procurement of hay, haylage, silage, grass meal, granulated and briquetted feeds as well as complex measures for raising the productivity of field feed production and of natural haylands and pastures.

During these years because of the great work of the party and state agricultural science in Kazakhstan developed into a large scientific center in the eastern section of the country, which has established the most important directions of modern science meeting the needs for the continued development of agriculture.

Outstanding contributions to the development of agricultural science have been made by VASKhNIL academicians A. I. Barayev, Hero of Socialist Labor [illegible], V. [illegible] Bal'mont, F. M. Mukhamedgaliyev, academicians of the Academy of Sciences of the Kazakh SSR N. U. Bazanova, G. Z. Biyashev, [illegible], corresponding members of the Academy of Sciences of the Kazakh SSR [illegible], A. [illegible] Zhangasiyev, V. P. Chernogolovin, M. Ye. [illegible], [illegible] Ye. Yelemanov, A. K. Kosiyakov, I. T. Lapanov, [illegible], A. [illegible] Sdol'skaya, doctors of science K. M. Mynbayev, [illegible], [illegible], T. F. Tavildarova, A. T. Panasenko, candidates of science Hero of Socialist Labor A. V. Pimenova, F. M. Mashtakov, Sh. M. [illegible], [illegible] Katsevko, A. I. Dorofeyev, V. I. Kovalenko, [illegible], [illegible], [illegible] Musin, [illegible] Galiakbarov, A. Ye. Yesenzholov, [illegible] and many others.

Many of the republic's scientists have been named recipients of the State Prize of the USSR and of the Kazakh SSR.

At the present time there are six full members (academicians) and six corresponding members of VASKhNIL in the Eastern branch. Under their leadership the urgent tasks of the continued development of agriculture are being solved successfully.

At the present time the efforts of the scientists of the Eastern branch of VASKhNIL are directed at dealing with urgent problems related to the new stage of the actual realization of a Leninist cooperative plan and at rendering overall aid to kolkhozes and sovkhozes. Clear reference points for the scientists of Kazakhstan are the mandates of the General Secretary of the CPSU Central Committee and Chairman of the Presidium of the USSR Supreme Soviet Comrade L. I. Brezhnev on the necessity to raise the productivity of the virgin lands to 20 quintals of grain per hectare, on increasing the republic's flock of sheep to 50 million and on further developing meat livestock farming and horse raising.

COPYRIGHT: "Sel'skoye khozyaystvo Kazakhstana", 1979

[illegible]
CSO: 1824

UDC 631.445.4.008

INCREASING PRODUCTIVITY IN RSFSR CHERNOZEM AREA

Moscow SEL'SKOYE KHOZYAYSTVO ROSSII in Russian No 12, Dec 79 pp 40-41

[Article by V. Shevchenko, director of the NIISKh [Scientific Research Institute of Agriculture] of TsChP [the Central Black Earth Belt] imeni V. V. Dokuchayev: "Raising the Productivity of the Russian Chernozem"]

[Text] In recent years a great deal has been done in order to preserve and increase the fertility of the fields in the Central Chernozem Area. Whereas during the Seventh Five-Year Plan capital investments allocated for the zone comprised 27 rubles per hectare of agricultural lands, during the eighth this figure increased to 49 and during the 10th to 133 rubles. But still the return remains low. During the Ninth Five-Year Plan the national economic plan for grain procurement was fulfilled by 79 percent, for the procurement of sunflowers--by 71.9 percent, and for that of sugar beets--by 59.9 percent. The primary reason for this is the slow growth in productivity of agricultural crops. For example, during this period the yield of grain increased by only 0.3 quintals per hectare and is now 18.2 quintals per hectare. The lowest yields were produced by the enterprises of Lipetskaya and Tambovskaya oblasts--17.3 and 16.6 quintals per hectare respectively.

The chief reserve for improving farming in the zone is, as previously, improving the utilization of the basic means of production--land. At the present time improving the fertility of our famous chernozems is becoming a priority goal. After all, during a year with average moisture supplies they can yield 20-25 quintals of grain per hectare without the use of fertilizer.

Humus and Fertilizer

V. V. Dokuchayev wrote: "We do not have the data with which to evaluate the strength and power of the king of soils, our Russian chernozem. It has been, is and will be the granary of Russia." But this statement assumed that the strength and power of the chernozem would be manifested only with its proper use.

In the Central Chernozem Zone there are 11 million hectares of chernozems in the humus layer of which there are 400-700 tons of humus and 15-35 tons of nitrogen per hectare. This is a colossal treasure. Nevertheless, we must consider that the fertilizers that are allocated for the zone cannot compensate for the loss of nutrients by the harvest. For this reason the potential fertility of the soil is supported primarily through its efficient utilization.

Are there violations in the utilization of chernozems? Yes, there are. Proof of this is the low level of productivity of crops being raised there. The average annual yield of grains during the Ninth Five-Year Plan, as was already noted, was 18 quintals per hectare. It is evident to all that this is extremely low. After all, during favorable years the average yield in the zone was 24 quintals per hectare, and in Belgorodskaya Oblast--[illegible]

It has been shown that with insufficient quantities of fertilizer applied over a long period of time, with the incorrect alternation of crops, and for a number of other reasons chernozem soils loose their natural fertility. For example, according to the data from our research, which was begun in the 1890's, during the 80-85 years that have passed since the expedition of Professor Dokuchayev the amount of humus in the chernozem and forest-steppe soils of many rayons has decreased by 15-25 percent and in some places by one-third and more. This attests to the fact that natural humus, which has not had a chance to accumulate for a long time, has disintegrated, and the products of disintegration in the form of water-soluble mineral salts were utilized by plants to form the harvest, thus being removed from the soil permanently. Losses of mineral salts and nutrients will increase more and more as a result of erosion.

Humus is essentially transformed kinetic energy from the sun's rays and its quantity is the most important indicator of the soil's fertility. The accumulation of humus and raising the natural fertility of the soil are important vital processes on earth. The more active the biological processes in the humus, the higher the fertility. For this reason we must take measures and use methods to activate useful biological processes in the soil. We can do this. Modern methods enable us to radically improve the nutritional regiment of the soil and to create an optimal balance of nutrients for producing large yields.

We have data, which proves that with the proper alternation of crops, soil cultivation, battles against weeds, pests and diseases of agricultural crops and the utilization of 6 tons of manure per hectare of area in crop rotation it is possible to not only stop the degradation of chernozems but also to increase the humus content in the plowing layer by 0.4 percent over a period of 10 years, to significantly improve its structural condition, to raise the water-absorptive and water-retention capabilities of the soil and to increase the productivity of crops in the crop-rotations by 15 percent.

Even under the dry conditions in the southeastern rayons of the zone fertilizers enable us to increase yield in crops of crop rotations by 25 purposes. However, this great program is still being implemented very slowly. Today fertilizers are utilized to compensate for only half of the nutrients removed by the harvest. During the last five-year plan their balance in the soils was negative, [illegible] tolerable norms. It is clear that under such circumstances the [illegible] were being worn down, resulting in all types of serious consequences.

Organic fertilizer plays an important role in the humus balance. In the course of the last decade the amount of humus has increased noticeably as a result of plant residues and manure, comprising 16.1 tons in the grain crop rotation, [illegible] in the intertilled-crop crop rotation, and 20.3 tons per hectare in the crop rotation with leguminous grasses. Without the application of fertilizer the organic matter of stubble and root remains does not replace the humus losses and a deficit in the soil is created. With a high saturation of the soil with organic fertilizers (calculated on the basis of 20 tons of manure per hectare annually) in the course of 10 years the humus content in the plowing layer and subplowing layer increased by 0.4 percent.

Only an intensive system of farming that foresees the application of organic and mineral fertilizers will enable us to produce a balanced humus. Thus, in a crop rotation with perennial leguminous grasses an average per year of [illegible] quintals of dry organic matter remains per hectare as well as, correspondingly, 53-62 kilograms. Stubble and root remains in a crop rotation with leguminous grasses are richer in nitrogen, which is very important for maintaining the equilibrium of the humus balance.

K. A. Timiryazev noted fertilizer is a means of fighting drought in addition to being a source of nutrition for the plant. When a plant receives abundant food it evaporates less water per unit of mass of dry matter than when there is a shortage of nutritive matter. According to the data of P. F. [illegible], on an unfertilized, non-irrigated plot of land 122.8 tons of water had to be expended to produce 1 quintal of grain. Yield was 10.7 quintals per hectare. In places where fertilizer was applied 1 quintal of grain required only 60.6 tons of water, or half as much, and the yield was [illegible] quintals.

Of course it is necessary to correctly utilize fertilizers, but it is also important to be concerned with collecting them. In connection with this I would like to focus attention on the utilization of liquid manure from livestock-raising complexes as well as liquid manure from regular farms. According to data from our institute's research, the application of 60-80 tons of liquid manure per hectare results in the following increases in yield: for grains--[illegible] quintals per hectare; for corn (green mass)--50-70; root crops--100-120. By the end of the 10th Five-Year Plan the output of such fertilizer in the zone will comprise 15 million tons, which can be used to fertilize 200,000-250,000 hectares annually.

[illegible] Structure of Crops and Crop Rotations

A special [illegible] [illegible] [illegible] [illegible] measures required by [illegible] [illegible] in the current [illegible] [illegible] [illegible] and [illegible] [illegible] legumes and grasses.

Despite the extensive utilization of mineral fertilizers, [illegible], herbicides and other means of plant protection as well as of irrigation and modern technology for cultivating soil it has not been possible to obtain an increasing yield of the main agricultural crops if they are cultivated permanently on the same fields. The reason is found in biological factors which limit the development of the plant. The problem can be eliminated only in a crop rotation, which takes into account the law of the unity and interrelated development of a phytocenosis (plant community) and its habitat. After all, the species of the plant community are not simply isolated groups of neighbors or individuals--they are interrelated in their struggle for the feeding area, for moisture, for light and for other elements of life. It has been established that any agrotechnical measure is less effective in the case of permanent cultivation than in that of crop rotation. The principle of crop rotation, which is essentially a unique model of a phytocenosis, is completely confirmed by science and practical experience.

[illegible] [illegible] that the yield of grain depends greatly on the saturation of the crop rotation with grain crops. When grains comprise 60 percent of the crop rotation the average yield of grain per hectare was [illegible] quintals on the average over a period of 9 years; 70 percent--[illegible] quintals per hectare; and 80 percent--[illegible] quintals per hectare. However, productivity was practically the same--29-30 quintals per hectare. Nevertheless, saturation is not limitless. With 70 percent saturation, although grain production per hectare of arable land increases by 1.6 quintals, its yield decreases by 2 quintals in comparison with a crop rotation in which grains comprise 60 percent of the crop structure. The total productivity per hectare also decreases by 11 percent (from 51.5 to 45.2 quintals of feed units).

In developing a structure for sowing areas under our conditions we must strictly observe the equality of areas in grain spike crops (rye, wheat, barley, oats) and of areas occupied by intertilled crops, pulse crops, grasses and fallow, all taken together. A violation of this balance in Tambovskaya Oblast, where spike crops occupied 68 percent of the area until recently, and pulse crops--only 2.2-4 percent, explains the sharp drop in yield (spike crops here are cultivated after spike crops for 2-3 years consecutively). For example, according to the data of the Tambovskaya Experimental Station, when barley was sown after corn the yield on the average over 5 years was 33.9 quintals per hectare, but when it was sown after a grain predecessor (spring wheat) the yield was only 24.1 quintals per hectare (an underyield of 9.8 quintals). When barley was cultivated for 4 years in a row on the same field its yield per hectare decreased by 5 quintals. Even the annual application of a triple mixture of mineral [illegible] productivity. As a result [illegible] [illegible] [illegible] yields [illegible] [illegible] [illegible] rainfall. It is apparent that the alternation [illegible] of [illegible] is [illegible] of grain [illegible].

[illegible]

[illegible] during the last [illegible] years we have become [illegible] planted on the same [illegible].

The following situation has developed in which many enterprises have [illegible] crop rotations. According to data from the [illegible] percent of the [illegible] and [illegible] of the [illegible] oblast [illegible] crop rotations. [illegible]

In order to [illegible] it is necessary to [illegible] a scientifically-based crop-rotation system in [illegible] in the shortest possible time. It has been determined that [illegible] percent of the arable land must be devoted to grains, with a possible fluctuation of from 50 to 60 percent depending upon the specialization of the enterprise. The highest percentage should be used in [illegible] enterprises, where there is less need for green and [illegible] [illegible] with technical crops is [illegible]. Here it should [illegible] be said that in field industrial-grain crop-rotations the proportion of grains should not exceed 60 percent of the arable land, but in [illegible] enterprises the proportion can reach 70 percent by increasing the [illegible] of [illegible] and grass-[illegible].

In developing [illegible] crop structure it is also important to determine the ratio of grain crops. We know that under our conditions winter wheat and barley [illegible] yields with the current agrotechnology and it would seem that it would be unimportant which of them is sown. Nevertheless, [illegible] that this is not unimportant at all. Because of the [illegible] winter crops are [illegible] and [illegible]. They try to put the area of barley [illegible] large yields for a [illegible] and are satisfied [illegible], winter wheat is the most valuable grain crop here though it is demanding of the conditions of cultivation. In this the reason that during the Eighth Five-Year Plan it occupied [illegible] percent of the arable land in the zone and that during the Ninth the figure had already dropped to [illegible] percent. Winter crops, and primarily wheat, were either sown because of the untimely and non-quality preparation of the soil or sown after poor predecessors (mainly after barley). During the fall-winter period the wheat frequently perished as a result of the shortage in assimilable forms of nitrogen and sometimes of moisture. Moreover, this happened on one fourth or even on half of the total sown area. Because of this the enterprises in the zone lose about [illegible] tons of [illegible] grain, and losses comprise [illegible] million rubles. When it came to resowing the perished winter crops, again the farmers turned to barley, the productivity of which (especially barley after barley) dropped sharply and diseases and pests developed. The consequence of this was the [illegible] depletion of the soil.

Scientific institutions recommend that winter crops occupy no less than [illegible] percent of the plowland and that they are sown after bare and occupied fallow that is harvested early (prior to 20 July), as well as after peas for grain. The actual orientation is toward barley and corn, both of which are harvested in September.

The majority of enterprises in the zone sow barley after sugar beets. Nevertheless, research shows that in this case its yield decreases by [illegible] quintals per hectare in comparison to sowing after corn. On the other hand, millet, buckwheat and peas respond well to the consequences of fertilization. They suffer less from weeds and a shortage of moisture and they yield large harvests.

In examining the question of crop structure it should be said that there is a shortage of clean fallow in the zone. Its area should be increased to [illegible] percent and to 10 percent in the southern and southeastern rayons, depending on the specialization of the enterprise. But with the rise in the general quality of farming and with the increase in the delivery of fertilizers and technology the percentage of clean fallow will be [illegible] increase in productivity per hectare the crop rotations with clean fallow are inferior to those with occupied fallow. We feel it is expedient to have one field (10 percent) in bare fallow in crop rotations for the southern and eastern rayons of Voronezhskaya Oblast (Bogucharskiy, Verkhnemamonskiy, Kalacheyevskiy, Kantemirovskiy, Pavlovskiy, Petropavlovskiy, Podgorenskiy, Ol'khovatskiy and Rossoshanskiy rayons), Belgorodskaya Oblast (Alekseyevskiy, Valuyskiy, Veydelevskiy, Krasnogvardeyskiy, Volokonovskiy and Roven'skiy) and Tambovskaya Oblast ([illegible], Umetskiy, Inzhavinskiy, Kirsanovskiy, Uvarovskiy, Mordovskiy, Rzhaksinskiy, Sampurskiy rayons). These areas experience moisture shortages during the sowing of winter crops most frequently and it is difficult to select good predecessors. In the remaining rayons of the zone bare fallow does not have to be a part of each crop rotation, but only if there is an agrotechnical necessity (the presence of sugar beet crops).

under our conditions we also should not forget about peas. Unfortunately, its area is limited by the harvesting possibilities. In some places this crop is underrated because its yield is smaller than that of other crops. But it is peas that enables us to curtail the expenditure of feed by 20-25 percent per unit of animal production. In addition, it is a good predecessor for winter wheat and it is necessary for a proper crop-rotation structure. In the zone peas should comprise 8-10 percent of the arable land area and by 1980 should occupy up to 1 million hectares.

However, no matter how good the structure of the sowing area might be, it cannot fully solve the problems of increasing the gross yield of grains and other farm products if the quality of soil cultivation is neglected. The effectiveness of herbicides and fertilizers and the productivity of crop rotations in general depend on the quality of soil cultivation. D. I. Mendeleyev wrote, "I will contradict all of those who preach orally or in writing that everything depends on fertilizers, that by fertilizing well it is possible to plow one way or another."

Whereas in the Non-Chernozem Zone effective soil fertility is created mainly through the application of fertilizer, in the Central Chernozem this is done through the correct cultivation of the soil as part of a certain system.

The timely plowing of autumn fields is among the most important means of fighting to accumulate and preserve moisture in the soil and to protect it against erosion. Nevertheless in the zone there are large areas that were plowed in the late autumn or in the spring and sometimes plows without skim-coulters were used.

Quality, Variety and Seed

A great reserve for raising the productivity and efficient utilization of land without any capital expenditures is the rapid assimilation of new highly-productive varieties of agricultural crops and an improvement in the organization of seed farming for these new varieties. The zone is in great need of a winter wheat variety that coordinates the productive possibilities of Kavkaz with the winter hardiness of rye, or at least, Il'inum 114. However, it is difficult or even impossible to solve such a complex problem with traditional selection methods. From this point of view the development of the new synthetic grass, tritikale, which was created through the method of distant hybridization, is very valuable. This work is going at full speed. We are testing Ukrainian varieties of tritikale, which even at the same productivity increases the yield of protein by 20 percent in comparison with Mironovskaya-808 and by 40-45 percent in comparison with rye.

There is not need to demonstrate the importance of varieties in raising productivity. We should just emphasize that in past five-year plans they solved tactical problems but now that intensive varieties and super-varieties have been developed, they solve strategical problems. In order to realize a plan variety policy and to avoid harvest failure due to unforeseen "experiments" in nature it is essential to sow 2-3 varieties of each crop, each differing in biological characteristics. For this reason the transition of seed farming to an industrial base becomes an urgent goal. The poor organization of variety seed farming in the production line is a serious problem. We must strive toward making the year in which a variety is regionalized into the year in which it is planted in reproduction plots in enterprises so that the seed-farming of variety seed becomes centralized. We must recognize the mistake in the fact that the zone has become a producer of barley while unjustifiably curtailing the area in winter rye, spring wheat, oats, peas, millet, corn for grain and buckwheat.

Combatting Soil Erosion

For the Central Chernozem Zone the problem of developing and introducing into production methods for combatting soil erosion is particularly urgent. The total area that may be in danger from this reaches over 3 million hectares. The lands of Belgorodskaya, Voronezhskaya and Kurskaya oblasts are particularly subject to erosion. Over 23 percent of the arable land in the zone is in various stages of erosion, and in Belgorodskaya Oblast—almost 50 percent of the land is.

The most effective measures and those that do not require considerable expenditures are agrotechnical, including soil-conservational crop rotations and fertilizers, the counter-erosion cultivation of soil and the regulation of melting snow. This complete complex was assimilated in Kamennaya Steppe, where erosion processes were halted on a large area.

The 10 years of experience of our institute have shown that the forest is a true friend to the grain farmers in the zone in combatting drought and in raising the fertility of soil. Non-productive evaporation from a soil surface is 9-10 percent lower on fields that are protected by forest belts than on open fields. There are no cases in which winter crops froze. Also, the yield of grain per hectare is usually 3-5 quintals higher. But the greatest effectiveness from belts is achieved if they are part of an entire system.

In addition to the planting of new protective plants it is essential to reconstruct the ineffective and old belts and to plant field-protective and water-regulating belts in water divides and on slopes as well as across the latter. The positive effect of forest vegetation on soil is indisputable. If the average humus content of a soil layer of 0-85 centimeters was 7 percent in 1900, then during 53 years as plowland that was not protected by forest belts the humus decreased by 1.52 percent. On protected plots the decrease was 0.75 percent, or only half.

One Way to Enrich Feeds with Protein

At the present time the content of digestible protein in feeds procured by the zone's enterprises is 80-90 grams per feed unit. Normally, the average is 105 or even 110. For this reason large quantities of feeds are wasted needlessly. Losses comprise 20-30 percent, resulting in great losses.

Increasing the production of plant protein is still the most accessible means of enriching feeds with protein. In this regard annual leguminous grasses and pulse crops are irreplaceable. It is true that the yield of peas is lower than that of other grains--13.4 as opposed to 18.7 quintals of grains on the average for the Ninth Five-Year Plan. Nevertheless, peas yielded 3.12 quintals of protein per hectare as compared with 2.14 for all grains on the average. This is the source for the lost 20 percent of feed. Consequently, the effectiveness of peas in this regard is the highest when compared to other grain crops. In addition, the yield of peas fluctuates less, and it is a good predecessor crop for winter crops. Within the structure of crops in the zone the area in peas and other pulse crops must be increased to 8-10 percent of the arable land.

Let us say a few words about corn for grain purposes. Despite the relatively low content of digestible protein corn grain is excellent and in some cases it is an irreplaceable ingredient of mixed fodder. The Central Chernozem Area is not an evident corn-growing region. Here this crop is cultivated primarily for silage purposes and mainly using imported seed. It would be expedient to cultivate it for grain in the southern half of Voronezhskaya and Belgorodskaya oblasts, where it can yield up to 50 quintals per hectare. In order to preserve corn on the cob enterprises must have simple driers equipped with VPT-400 or VPT-600 air warmers. They cost 5,000-8,000 rubles to build, including 1,100-1,600 rubles for equipment. This can solve the problem of drying not only corn but also sunflower seeds. The saturation of field crop rotations with peas and corn for grain will enable us to bring the grains group up to 65 percent without decreasing productivity.

Our zone has unstable and even insufficient moisture supplies. This puts artificial irrigation among the important factors of intensive farming and for increasing feeds. It is being developed on the basis of the regulation of local currents, whose size fluctuates from 30 millimeters in the southern rayons to 100 in the northern. Consequently, irrigation must be built on the use of mobile technical means. Practical experience demonstrates that in sprinkler irrigation the coefficient of water use increases by 30 percent, the possibility of the secondary salination of the soil is excluded and the productivity of labor increases by 3-4 times in comparison with the manual method of irrigation. At the same time this peculiarity requires a firm basis for the selection of crops. Experience shows that on irrigated lands the priority crops to be cultivated are feed crops and primarily perennial grasses and vegetables.

There are about 700,000 hectares of natural haylands and 1.3 million hectares of pastures in the zone. Almost everywhere they produce very small yields of hay and green mass. At the same time it has been proven that with radical and surface improvements the productivity of these lands can be raised by 3-4 times. For example, the Pavlovskoye Experimental Field, where floodlands were radically improved, produce 63-74 quintals of hay per hectare as compared with the 10.6 quintals in the control.

The conclusion from all of the aforementioned is that the possibilities of the Russian chernozem are great if the quality of farming is improved.

COPYRIGHT: "Sel'skoye khozyaystvo Rossii", 1979

9228
CSO: 1824

EXPERIMENTS COMPARE PRODUCTIVITY OF VARIOUS CROSS BREEDS OF STEERS

Alma-Ata SEL'SKOYE KHOZYAYSTVO KAZAKHSTANA in Russian No 12, Dec 79 p 14

[Article by Sh. Khamitov, V. Ozherel'yev and V. Cherepanov of the Kazakh Scientific Research Technological Institute of Animal Husbandry: "Meat Productivity of Livestock on Industrial-Type Farms"]

[Text] During the next few years, the main quantity of beef will be produced by virtue of the slaughter of cattle from dairy and dairy-and-beef breeds. In conjunction with this, the industrial cross-breeding of low-productivity dairy and dairy-and-beef breeds with bulls from fast-maturing beef breeds will also be of no small importance in terms of significiance for increasing and improving the quality of beef. At the same time, scientifically valid data on the breeding and fattening of young animals of specialized beef breeds under industrial-type farm conditions has been far from adequately gathered, while in the southeast of Kazakhstan these experiments have, in general, not been carried out at all.

Taking into account the fact that Kazakhstan is one of the main bases for specialized beef cattle breeding in the country and that in the near future this sector will be converted to intensive operations, a comparative experiment to study the growth, development and meat productivity of bull-calves belonging to different breeds was conducted by us at the Burunday Specialized Farm Association. With this aim in mind, four groups of analogous bull-calves were formed at the age of 10 months according to the diagram.

Table

Groups	Number of Animals in the Group	Origin		Sex of the Issue
		Breed of Father	Breed of Mother	
1 experimental	18	Galloway	Alatau	Bull-calves
2 experimental	18	Santa Gertrudis	Alatau	Bull-calves
3 control	18	Alatau	Alatau	Bull-calves
4 control	18	Black Mixed	Black Mixed	Bull-calves

All groups of animals were kept under identical conditions of feeding and maintenance. The young animals of the experimental, as well as of the control groups, were kept in a building without tether and with freedom to wander out into grounds of the open variety.

During the course of the entire period of growing up and fattening, the animals in all the groups being compared received rations consisting of a green paste of corn and corn silage, hay from different types of grasses and barley straw, concentrates and molasses distillery grain mash. The rations that were put together for each group of young animals were notable in practical terms in terms of structure, mineral composition, over-all nutritional value and level of digestible protein. The coarse feeds (hay and straw) went through preliminary preparation prior to feeding.

The distribution of feeds was implemented by the KTU-10 and RKA-6 model mobile feed distributors. In winter the distribution of succulent and coarse feeds was performed inside the building, while on warm days it was done in the feeding grounds where the animals were free to wander.

During the seven months for the growing up and fattening of the young animals of all groups, 74 to 78 grams of digestible protein were, in practical terms, expended on one feed unit.

Despite the identical content and feeding of the experimental groups of young animals, their development was different.

During the initial staging of the experiment, the mixed-breed young animal of the beef breeds had a lower live weight. However, during subsequent age periods, it would develop intensively, gradually overtaking its own analogous peers of the same age belonging to the Alatau and Black Mixed breeds in terms of its own development. Thus, at 10 months (the staging age), the young animal of the third group has a greater live weight than the bull-calf of the first and second groups by 34.7 kilograms (15.76 percent) and 35.3 kilograms (16.02 percent) respectively. The animals of the fourth group surpassed their peers from the first and second groups by 35.6 kilograms (15.34 percent) and 36.2 kilograms (15.61 percent) respectively. But as early as 17 months of age, the bull-calves whose fathers belonged to specialized beef breeds were not only equal with their peers in terms of their own development, but also surpassed them in terms of live weight by 6.9 to 14.2 kilograms.

The bull-calves obtained during the cross-breeding of cows of the Alatau breed with bull-calves of specialized beef breeds would yield a large over-all increase when compared with analogous bull-calves of the dairy and beef-and-dairy breeds at all age periods. Bull-calves of the Santa Gertrudis breed at 11 months of age constituted a certain exception to this.

During the period of growing up and fattening of castrated steers whose fathers belonged to the Galloway and Santa Gertrudis breeds, the over-all increase in live weight amounted to 208.7 and 217.9 kilograms respectively, while among the Alatau and Black Mixed breeds it was 40.6 kilograms (19.49 percent) and 52.8 kilograms (24.80 percent) less.

The superiority of animals of the 1st and 2nd groups over the young animals of the 3rd and 4th groups is also observed in terms of the changes in the average daily increases in weight for the entire period of growing up and fattening. Thus, animals of the 1st group surpassed the bull-calves of the 3rd group by 215 grams ([illegible] percent) in terms of average daily increments, while they surpassed those of the 4th group by 182 grams (18.9 percent).

Young animals of the 2nd group surpassed bull-calves of the 3rd group by 235 grams in terms of weight increases, while they surpassed those of the 4th group by 202 grams.

The greatest average daily increase in weight--979 grams over a period of 7 months--was obtained among mixed-breed animals of the Santa Gertrudis breed, while the least--746 grams--was obtained among bull-calves of the Alatau breed. No essential difference in terms of average daily increases in weight was observed between young animals of the 1st and 2nd groups.

COPYRIGHT: "Sel'skoye khozyaystvo Kazakhstana", 1979

9983
CSO: 1824

PLANS OF UKRAINIAN GRAIN FARMERS REVIEWED

Moscow SEL'SKAYA ZHIZN' in Russian 2 Feb 80 p 1

[Article by T. Arkushenko (Kiev): "For Full Weight Ears"]

[Text] Just as in the past, a maximum amount of concern is being displayed for the grain fields in the Ukraine. In the acreage structure for this year, 17.7 million hectares have been set aside for the grain fields. This represents more than one half of the total amount of acreage.

The republic's farmers are relying heavily upon achieving improvements in the cropping power of the winter crops, which this year occupy more than ten million hectares of arable land. More generous amounts of organic and mineral fertilizers have been applied in behalf of the crops than has been the case in the past, with such fertilizers being distributed over approximately 3 million hectares using the non-plow soil cultivation method. The best varieties of winter crops have been planted out on the fields. The largest tracts are occupied by Odesskaya-51, Mironovskaya-808, Il'ichevka and Bezostaya-1 wheats, all of which have earned the respect of the farmers. Considerable areas have also been planted in varieties which made their initial appearance during the past few years -- Odesskaya-66, Belotserkovskaya-177 and Khersonskaya-153. But the greatest expansion in acreage has taken place in the case of the Akhtyrchanka variety -- it has been planted on more than one half million hectares. Moreover, only 2 years have passed since it underwent state testing. Such a large growing zone for the Akhtyrchanka variety has become possible owing to its early ripening capability and rather uncommon resistance to lodging, combined with its high cropping power -- up to 80 quintals per hectare.

The field workers are also displaying a great amount of concern for their spring crops. The kolkhozes and sovkhozes have prepared their autumn plowed fields and they have adequate quantities of seed in storage, 90 percent of which has been improved to first class quality.

Special attention has been given to corn. For the very first time, this principal grain forage crop will be grown on a rather large area -- 380,000 hectares -- using an industrial technology. This new method, borrowed last year from the Moldavian farmers, has fully proved its worth. For example, the grain growers in Boigradskiy Rayon of Odesskaya Oblast obtained 70 quintals of grain from each of 5,000 hectares -- this was roughly 25 percent more than the amount obtained from other plantations.

The republic's farmers are persistently introducing complex plans for improving the fertility of the soils.

During this final year of the five-year plan, the agricultural workers in the Ukraine are planning to produce [illegible]0 million tons of grain and to sell more than 1 billion poods of grain to the state.

1026
CSO: 1824

PREPARATIONS FOR SOWING CAMPAIGN IN RYAZANSKAYA OBLAST

Moscow SEL'SKAYA ZHIZN' in Russian 2 Feb 80 p 1

[Article by A. Zholobov, Ryazanskaya Oblast: "Time is Fleeting"]

[Text] The farmers in many regions of the nonchernozem zone share a special concern this year in connection with preparations for the sowing campaign -- the drought which occurred last year precluded the possibility of obtaining full value and good quality grain. Aware that poor seed should never be brought out onto the fields, they are carefully improving the seed to meet the requirements set forth in the sowing standard and they are striving, as rapidly as possible, to complete the exchange of unsuitable seed for quality-standardized seed.

This is precisely how the work is being carried out on one of the leading farms in Starozhilovskiy Rayon -- the Kolkhoz imeni Lenin. In the complex of measures to be carried out in behalf of the harvest, priority concern is being shown here for the quality of the seed. As a result, an average of 32 quintals of grain has been obtained here over the past 4 years and, compared to the previous five-year period, an increase of one third has been achieved in the total yield and sale of grain to the state. In honor of the 110th anniversary of the birth of V.I. Lenin, the decision was handed down to obtain 35 quintals of grain from each hectare.

Concerned leaders follow the rule of commencing their spring sowing preparations simultaneously with bringing in their harvest. At this time, specialized teams are assigned to purify, dry and grade the grain. The seed from all crops is brought to first class quality during the best periods.

Almost all of the farms in the rayon are following the example set by the Kolkhoz imeni Lenin in organizing their preparations for spring. As a result, the seed here is quality-standardized and of first or second class. The farmers in Ryazanskiy, Novoderevenskiy and Shatskiy rayons have organized their work in like manner. Unfortunately, however, many facts of a different nature can also be cited. In particular, the grain growers in

Spasskiy, Kadomskiy, Klepikovskiy and Sapozhkovskiy rayons are prolonging their seed purification and grading work in an unwarranted manner. One third of the seed does not meet the sowing standards.

Last year the oblast did not succeed in obtaining adequate amounts of seed for its wheat, barley, oats, peas and groat crops. In order to make up for this shortage and replace a portion of the non-quality standardized seed, a certain quantity of grain had to be obtained from the state resources. However, not all of the suppliers are conscientiously fulfilling their obligations. For example, back in December the Bashkir procurement specialists were required to ship 1,000 tons of peas for the fields in Ryazanskaya Oblast and yet not one freight car has arrived to date. Only one half of the wheat seed has been shipped from Orenburg.

Large batches of the delivered grain did not meet the sowing standards. For example, of 6,000 tons of barley obtained from Saratovskaya Oblast, 3,000 tons turned out to be non-standard; of 8,500 tons of Orenburg wheat, more than one third was badly contaminated by barley and wild oats.

Many reserves are concealed within the oblast. Enterprises of the Ryazan' Grain Products Administration have 32 powerful grain purification units at their disposal, units which are capable of processing up to 500 tons of grain daily on the grain cleaners. Unfortunately, they are not being operated at full capability or in two shifts in all areas. In some rayons, the farms themselves are failing to display the proper degree of haste in exchanging and obtaining seed from the state resources. In particular, such sluggishness is being tolerated by the kolkhozes and sovkhozes in Miloslavskiy Rayon. Of 1,500 tons of quality-standardized barley allocated for exchange at the grain receiving point here, as yet only one tenth has been removed and time does not wait.

7026
CSO: 1824

ZONAL SCIENTIFIC-PRODUCTION CONFERENCE REPORTED

Kiev SIL'S'KI VISTI in Ukrainian 11 Jan 80 p 1

[RATAU report: "Zonal Scientific-Production Conference"]

[Text] Actual problems of increasing the effectiveness and stability of crop raising in Ukraine and Moldavia were discussed at a zonal scientific-production conference which opened on January 10 in Kiev. Participating in this conference are: leading scientists, managers and specialists of agricultural organs, some obkom and raykom party secretaries, directors of agricultural departments of party obkoms, ministers, deputy heads of oblast agricultural administrations, directors of agricultural technology and agricultural chemistry unions, sovkhoz trusts, some agricultural enterprises, responsible workers of the Central Committee of the Ukrainian Communist Party, and the republic's Council of Ministers.

Conference opening remarks were delivered by member of the Politburo, secretary of the Central Committee of the Ukrainian Communist Party, M. M. Borysenko.

Reports were heard by deputy chairman of the presidium of the Southern Section of VASKHNIL [All-Union Academy of Agricultural Sciences USSR] corresponding member of VASKHNIL O. O. Sobko, vice-president of the Moldavian SSR Academy of Sciences, corresponding member of VASKHNIL M. P. Lupashko, joint reports by the director of the All-Union Institute of Selection and Genetics, doctor of agricultural sciences L. K. Syechnyak, first secretary of the Poltava party obkom, candidate of agricultural sciences F. T. Morhun, secretary of the Vinnitsa party obkon I. P. Bondarchuk, the director of the Ukrainian Scientific-Research Institute of Soil Science and Agricultural Chemistry, candidate of agricultural sciences B. S. Nosko.

The following are participating in conference work: chief of the agricultural section of CC CPSU M. M. Kovalenko, chief of the agricultural section of the Ukrainian Communist Party Central Committee A. D. Kovalenko, chief of the agricultural section section of the Moldavian Communist Party Central Committee A. F. Zozymko, first secretary of the Kiev party obkom V. M. Tsybul'ko, deputy minister of agriculture of the USSR A. O. Hol'tsov, first vice-president of VASKHNIL O. O. Zozynov, vice-president of the Ukrainian Academy of Sciences, academician of the Ukrainian Academy of Sciences K. M. Sytnyk, Southern Section of VASKHNIL presidium chairman B. O. Bohdanov.

9443
CSO: 1811

ZONAL CONFERENCE OF VASKHNIL FOR THE UKRAINE AND MOLDAVIA REPORTED

Kiev SIL'S'KI VISTI in Ukrainian 13 Jan 80 p 2

[Article by V. Kalyta: "An Abundant Harvest in the Field"; Notes from the zonal scientific-production conference on increasing the effectiveness and stability of crop raising in the Ukraine and Moldavia]

[Text] The farmer provides the soil with strength. Scientists help him in this. Scientific achievement today provides the basis without which progress in crop raising is unthinkable.

What should be done to make this important aspect of agricultural production even more effective and more stable under the negative effects of unfavorable weather? How should a stable grain, sugar beet and other production be achieved independent of yearly weather condition changes? These problems were discussed at the zonal scientific-production conference which completed its work the day before yesterday.

The minister of agriculture of the UkrSSR M. V. Khorunzhyy and the first vice-president of VASKHNIL O. O. Sozynov spoke at the conference.

The following took part in the conference working session: Politburo members, the Central Committee Secretary of the Ukrainian Communist Party M. M. Borysenko, deputy chairman of the Council of Ministers of the Ukraine I. D. Stepanenko, sector chief of the Agricultural Department CC CPSU M. M. Kovalenko, department chiefs of the Ukrainian Communist Party Central Committee A. D. Kovalenko, F. M. Rudych, chief of the agricultural department of the Moldavian Communist Party Central Committee A. P. Zazymko, first secretaries of party obkoms: Kiev — V. M. Tsybul'ko, Poltava — F. T. Morhun, deputy minister of agriculture of the USSR A. O. Mol'tsev, chiefs of a number of ministries and information offices of the UkSSR and prominent scientists.

Stabilizing the Gross Yield

There have been tremendous changes in recent times in the farmer's primordial battle with the elements. Let us recall even the past decades. Last year's coincidence of unfavorable wintering conditions for winter crops, and later

A severe drought in the past would have inevitably led to a poor harvest. And today? A larger grain crop was harvested in our republic in 1976 than was possible ten years ago even in highly productive years.

More and more farms in the Ukraine and in the sister republic of Moldavia achieve a stable gross yield in crop raising production regardless of the weather. This is possible because of continuous party and state efforts to strengthen the material-technical basis of the village, raising soil productivity, increased skillfulness of village workers, goal-directed scientific assistance in developing and putting into practice new, more exact procedures for growing leading crops, and creating highly productive varieties and hybrids of plants, etc.

The achievements are gratifying. Still, negative influences of the elements can be neutralized even further. A harvest analysis for droughty years showed that destructive drought action can be markedly reduced by working creatively, maintaining high standards for crop raising, adhering strictly to technological discipline, and working continuously on raising soil productivity.

Scientists have estimated that in order to create a self-supporting and, in perspective, positive humus balance in the republic's soil, almost 400 million tons of organic fertilizer must be applied in the form of manure, composts and siderites. This means that their production compared to last year must be increased one and a half times.

To increase soil productivity to the harvest level of grain, feed and other crops, projected for the 11th Five-Year Plan, it is essential not only to produce more organic fertilizers and to utilize them rationally, but also to expand sowing of perennial pulse grasses.

High soil productivity is the basis for large, stable harvests of all crops among which the grain crops are, of course, most valuable.

Winter wheat is our most important grain. The principal suppliers are farms in the Steppe zone. What limits the production level of this crop the most? A lack of moisture. Therefore, as pointed out in his conference talk by the deputy presidium chairman of the Southern Section of VASKHNIL, corresponding member of VASKHNIL O. D. Sobke all methods of growing wheat must be directed towards the accumulation of moisture reserves, and a most optimal utilization of insignificant and irregular precipitation in the Steppe. Another substantial reserve is the distribution of winter crops in rotation after better predecessors, sowing in specific areas after clean fallow, thorough soil working, and again rational fertilizer application.

Speaking of clean fallow, should we put up with the fact that on some farms 30-40 quintals of wheat are harvested from them? No, after this predecessor there is a potential to harvest 50-60 quintals of grain. Only then can its production stability be attained in the Steppe zone.

In Any Weather Conditions

The role of soil preparation cannot be underestimated in the technological chain of growing winter crops. Which methods are most favorable for increasing the effectiveness and stability of crop raising? Research conducted by a number of scientific-research institutes and research stations over many years indicates that: after peas, corn, grasses harvested for green chop, field surface working with disk, sweep-like and other implements is better for winter wheat.

The following are data from a grain production analysis on farms in the Genicheskyy rayon in the Kherson area. In 1976-1978 winter wheat, sown after unfallow predecessors with surface working yielded 5,2 quintals of grain per hectare more than after plowing. Last year also the increase was 4 quintals favoring the sweep. Many examples like this can be cited.

It was pointed out during the conference that even today along with agrochemical and microbiological research, it is essential, in proportion to accumulated scientific and practical experience and adequate farm technology, to systematically put into effect this method of working the fields. A good example is the experience of Poltava farmers, a convincing confirmation of its expediency and timeliness.

Winter wheat is the basic crop of the Poltava area grain fields. More than 600 thousand hectares are sown on farms there. Of this, 30 percent are allocated after stubble predecessors, about the same amount after corn for silage and green chop. The traditional soil working method, plowing after marked predecessors, put agronomers and farm managers in a difficult position. In the twenty-year period prior to 1973, each year a fifth part of the winter crop wedge was resown. Some excused this by unfavorable weather conditions saying that one cannot battle with the elements. They cited freezing, flooding and a ground-in ice crust in the fields. But are these negative phenomena really this powerful? An analysis of twenty years' agricultural experience in the oblast showed: in this whole period only four times did actual conditions contribute to the loss of wheat, when there seemed to be a lot of frost, no snow, or when crops were covered with a solid ice crust. In other years, winter crop failures were only tributes to the commonplace and to conservatism, indicated in his speech during the conference the first secretary of Poltavskaya oblast party obkom F. T. Morhun.

The picture in the fields in the fall was: large clods were left behind the plow; to level the field somehow and let the soil settle various easy methods were utilized thus drying out the plowed layer. Along with this the soil was pulverized artificially, and additional hotbeds of wind and water erosion were formed. In 1973 the farmers began to study the effectiveness of sweep tilling, the surface method, in production conditions.

At this point the Poltava area people can make certain generalizations. Let us visit the "Bil'shovyts'ka Pratsya" kolkhoz in the Karlovskyy rayon.

In the last four years none of the plowed wheat fields produced more than 48,3 quintals of grain per hectare. At the same time on areas of surface tilling the harvest increased to 50-52 quintals and more.

Within the oblast, the effectiveness of wide spread surface soil working was shown in a gross harvest grain increase for 1974-1979 amounting to 503 thousand tons. Last year, of course, was very droughty and yet permitted the farmers to increase the wheat harvest by 15 percent compared to traditional plowing. Additional net profit per each hectare amounts to 24 karb. 64 kop., the prime cost per grain quintal is lowered compared to plowing by 0,68 karb., and the profit norm increases by 19,4 percent.

The general conclusion of the Poltava farmers was that the use of plowless tilling makes crop raising more stable. It is less affected by unfavorable weather conditions, not mentioning even the visible gain in raising work productivity.

Meeting the Need

Science and production representatives exchanged thoughts and experience on raising the gross corn harvest, talked about the first products of raising it in accordance with progressive industrial technology.

Problems of feed production are tightly connected with grain farming. Conference participants decided that they must be solved jointly in a complex fashion.

The basic reserve in multiplying forage supplies for livestock raising is an intensification of feed production. It can be achieved through further perfecting the crop sowing structure, suitable area fertilizing, increasing the harvest of feed crops, particularly those high in albumen, and the productivity of natural hay fields. In connection with this there is a need to develop and introduce on farms, rayons and oblasts and in the republic as a whole a rational structure of feed balance mindful of the peculiarities of soil-climate zones and the direction of specialization in livestock raising.

Conference participants were able to acquaint themselves with a complex plan of production and rational feed use for 1980-1985 in the Vinnitskaya oblast. It was prepared by oblast organizations together with the Ukrainian Scientific Research Institute on Feed. To increase the fodder reserve production by 1,5 - 1,7 times, as anticipated by the plan, and to raise their quality especially in albumen content, areas for sowing perennial grasses are being expanded within the oblast.

A promising, economically convenient way to expand feed production, other plant production and crop raising stability is the creation and general introduction of new, highly productive varieties and hybrids, making their seeds available too.

The achievements of our republic's plant breeders are quite notable. Winter wheat varieties developed by them, for example, occupy close to 80 percent of our area, even more for barley, peas, millet and soybeans. Valuable crops like sugar beets, alfalfa, and clover are sown completely with varieties of Ukrainian plant breeders.

Unfortunately, several varieties of important crops bred in the republic are not spread widely enough yet, since they do not completely satisfy the requirements for intensive crop raising. The same can be said also about corn hybrids. At this point primarily workers of the All-Union Corn Institute must be reproached. Farm workers expect from them and form other scientific workers dealing with this valuable grain-forage crop highly productive corn hybrids, cold resistant, resistant to bad weather conditions, and very importantly, early ripening with better grain quality.

Plant breeding for quality will raise the effectiveness and stability of crop raising. It is important to breed varieties of agricultural crops adapted not only to normal but also to unfavorable weather conditions in the zone.

On the other hand, has everything been done in the production end to utilize the biological potential provided by plant breeders in present varieties? No, far from it. Wide use of variety agrotechnology would be especially favorable since it covers fully recent plant breeding news. It is worthwhile to sow two-three regionalized varieties on each farm permitting better utilization of their harvest potential.

Scientific effort should also be concentrated on other important areas. Efforts should be made to obtain the fullest returns from each irrigated hectare, other reclaimed lands, to practice a differentiated approach to the methods of working soil considering specific conditions of the field and zone. More effective systems of crop raising should be developed and introduced meeting the conditions of production specialization and concentration, raising the effectiveness and stability of crop raising, systematically raising the level of seed growing, providing for better cooperation among scescientists and practitioners.

The general secretary of the CC CPSU, USSR Supreme Soviet Presidium chairman, comrade L. I. Brezhnev indicated in his address at the November (1979) Plenum of the CC CPSU that for solving actual tasks facing national economy the party counts on active aid from the scientists. One way of applying knowledge is in crop raising, the most important branch of agricultural production.

9441
CSO: 1811

MAKSIMENKOVA REVIEWS LATE-JANUARY WEATHER, CROP DEVELOPMENT

LD121259 Moscow SEL'SKAYA ZHIZN' in Russian 5 Feb 80 p 3 LD

[Agricultural Meteorologist T. Maksimenkova report under the rubric: "USSR Hydrometeorological Center Reports:" "The Weather and the Crops"]

[Text] In the last third of January extremely cold weather persisted over the country's European territory. In most areas the average air temperatures were 3-6 degrees lower than normal--in places 10 degrees. Only in western oblasts of the Ukraine and in Moldavia were the temperatures near normal.

The conditions for wintering of grain crops and grasses were in the main satisfactory. Despite hard frosts, minimum soil temperatures at winter crop tillering node depth remained everywhere between minus 3 and minus 9 degrees, since the snow cover in most areas is quite sufficient to protect the plants. Almost everywhere the snow is at least 15-25 cm deep. In the northwest area, the northeast of the central area and the north of the Volgo-Vyatka area, the snow is considerably deeper--30-45 cm and in places over 50 cm. In Stavropolskiy Kray and southern and central oblasts of the Ukraine, the depth of snow cover is comparatively slight, but frosts here reached 17-19 degrees.

Severe cold spells (the minimum snow surface temperature being minus 35-minus 45 degrees) caused a 40-50 cm increase in the soil freezing depth in the northeast of our country's European territory, especially in northern areas of Gorkovskaya Oblast, the east of Kostromskaya and Vologodskaya oblasts and also in most areas of Kirovskaya and Permskaya oblasts. Here soil temperatures at winter crop and grass tillering node depth remained for a long time between 0-1 degrees with little soil freezing. Now temperatures beneath the snow cover have dropped and are reaching minus 2 to minus 4 degrees.

In most areas of Western Siberia, despite severe frosts, soil temperatures at winter crop and grass tillering node depth remained between the optimal limits of minus 7 and minus 9 degrees. The crops are covered with quite deep snow--15-25 cm and over.

In the Central Asian republics in the last third days of January the weather was unsettled with sharp fluctuations in temperature. Sometimes daytime temperatures rose to 5-10 degrees, while at night they dropped to minus 12-20 degrees and in the valleys of Kirgiziya they reached minus 24. The average air temperatures almost everywhere were 1-6 degrees lower than normal. Winter grain crops and perennial grasses were in a state of dormancy. Minimum soil temperatures at tillering node depth were mainly normal and wintering proceeded satisfactorily.

CSO: 1824

SNOW RETENTION WORK IN TSELINOGRADSKAYA OBLAST

Moscow PRAVDA in Russian 1 Feb 80 p 1

[Article by V. Vasilenko and V. Vorob'yev (Tselinogradskaya Oblast): "The Virgin Land Workers Have Moved Out Onto the Steppe"]

> [Text] Winter with its frosts and snowstorms prevails out on the Kazakhstan Steppe. But even now the rumbling of motors can be heard here. This year the farmers in Tselinogradskaya Oblast must carry out snow retention work on 3.5 million hectares and transport approximately 3 million tons of organic fertilizers. "White plowing" is being carried out both day and night. Fertility brigades have commenced their operations. The machine operators in the Priishim'ye Steppe have resolved to make this present and final year of the five-year plan a year of shock labor and to please the homeland once again by gathering in a large grain harvest. The socialist obligations as adopted contain the following item: during 1980, to supply the state's granaries with more than 2 million tons of grain, with 85 percent of the wheat being of strong, durum and valuable varieties.

A ground wind is blowing and washing away the outline of a distant village. The sun has not made an appearance today. Moreover, the snowstorm is expected to increase in force by nightfall. A powerful Kirovets tractor levels off a field as it tows an assembly consisting of three snow plows, leaving behind a track 6 meters in width. The ground wind "attacks" the furrows, smoothing them out.

"Snow on the fields means grain for the granaries. According to our computations, we will have received 40-45 centimeters of snow cover by the middle of February" stated machine operator N. Brykin of the Sovkhoz imeni KazTsIK, "and this moisture must suffice for the future seedlings until the arrival of the July rainfall."

For several years now, the collective at the sovkhoz has carried out its snow retention work in two shifts. So as not to lose time, the tractors are not driven back and forth to the farmstead. Hot meals are delivered to the fields from the dining hall. Those who work during the day leave their tractor cabins in the evening. Their places are taken over by fellow workers, who must carry out the "plowing" work until morning. During a period of 24 hours, snow ridges are arranged here on 1,500 hectares. In all, such work has already been completed on 25,000 hectares of fields. This snow retention work will be carried out once again during February.

Approximately 1,700 assemblies, towed mainly by Kirovets tractors, are being employed in Tselinogradskaya Oblast for the accumulation of moisture. Their daily work volume -- up to 100,000 hectares. An increase has taken place in the number of farms operating snow plows in two shifts. The results of the competition are being summarized in an efficient manner and teams of adjusters are carrying out their work in all areas.

Fertility brigade collectives are working side by side with those carrying out snow retention work. However, somewhat more humble successes are being realized here. Brigades which were formerly subordinate to the oblast Goskomsel'khoztekhnika Association are now subordinate to the Production Association for the Use of Chemical Processes in Agriculture, which is only now coming into being. Personnel staffing and creation of the material base are proceeding very slowly. Similar situations prevail in other areas. In essence, there are 11 large mechanized fertility brigades which have been left to fend for themselves. Of 1 million tons of organic fertilizers which they were required to transport, less than 100,000 tons have been moved out onto the fields.

The oblast's party and economic organs must furnish assistance in the formation of this service, since the yields expected from the fields are dependent upon its operation. There are many farms where a solution has been found for this problem.

"During 4 years of the five-year plan, we raised our cropping power by an average of 3 quintals of grain" stated the secretary of the party committee at the Krasnoyarskiy Sovkhoz, S. Masliy, "A great amount of credit is due the fertility teams in this regard."

Using their own resources, the oblast's farms must transport 2 million tons of organic fertilizer out onto the fields. But they are still very far from achieving this goal. Some sovkhoz and kolkhoz leaders are relying solely upon receiving assistance from enterprises of Goskomsel'khoztekhnika and the new service for the use of chemical processes and are making very little use of their own reserves. For example, although the collective of the Khleborob Sovkhoz in Alekseyevskiy Rayon used its own resources for transporting its organic fertilizers, the remaining farms in the rayon are not moving the planned quantities of farmyard manure out onto the fields.

Although the ears of grain do not ripen until summer, the concern for such grain commences during the autumn and winter months. It is the responsibility of the party, soviet and economic organs throughout the oblast to carry out all measures aimed at ensuring that complete preparations are made for the spring period of work.

[illegible]

CSO: 1824

BRIEFS

FERTILIZERS TO VOLGA PORTS--Baku. The tanker "Udshary," returning from Astrakhan', completed its navigation to the north of the Caspian Sea yesterday. A warm winter made it possible to extend the navigation to the lower reaches of the Volga by half a month. Owing to this the sailors of the Caspian increased by almost half a million tons the delivery of building materials, oil products, mineral fertilizers and chemical raw materials to Volga ports. [Text] [Minsk SEL'SKAYA GAZETA in Russian 4 Jan 80 p 1] 10908

PRODUCTIVITY AT NEKRASOV SOVKHOZ--Kustanayskaya Oblast. Noone at the Sovkhoz imeni Nekrasov has succeeded in attaining such a high productivity of labor as shown by Nikolay Nikolayevich Lasita, Leonid Mikhaylovich Maley, Aleksandr Andreyevich Yesipenko and Aleksandr Dmitriyevich Boyko. They attached several snowplows each to their high-powered K-701 and worked at high speeds in two shifts. The industrious machine operators piled up snow mounds daily on an area of 700-800 hectares. The sovkhoz finished snow retention in a short time. It was performed on 37,000 hectares. The highly productive labor of the tractor drivers permitted the sovkhoz to manage the important work without enlisting for it the machine operators engaged in the repair of equipment which, in turn, insured successful fulfillment of the quarterly plan for preparation of the combines. ...Winter wrapped the steppe with a fluffy snow cover. A white silence reigned on the grain fields, but time does not allow the farmers to relax. This is exactly the time when the foundation is laid for this year's harvest, when moisture is stored on the fields for the future. It is true that the beginning of winter with frequent thaws somewhat upset the calculations of the farmers. A danger even arose: will we have the necessary amount of snow? All this is behind now. Enough snow has fallen. According to data of the Kustanay hydrometeorological bureau, the winter blanket of the fields this year exceeds last year's snow cover. This gives hope, but it also increases the responsibility. It is necessary to utilize the presented opportunities to the fullest. The task is fully clear: perform the snow retention quickly. Due to the caprices of the weather, it was not possible to take the snow-retention devices to the fields until much later than usual. The work began on a broad front in the oblast in the second half of December. However since the first days it has been done at high rates. Every day the Kustanay people are performing snow retention on an area of 100,000 hectares. By using the know-how of the innovators, clearly organizing the labor of the machine operators, and creating the necessary conditions for them for work and rest, good results are being attained in snow retention in the farms of

Kustanayskiy, Ordzhonikidzevskiy, Makyshninskiy, Semiozernyy, Taranovskiy and Uritskiy rayons. It is necessary for the Kustanay grain growers to perform snow-retention on an area of 5 million hectares. The rates of the important work are increasing. If there is snow, there will be a harvest! The local farmers recognized this truth long ago and they are trying to work with a full return. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 8 Jan 80 p 1] 10908

WORK IN DAGESTAN--Makhachkala, 22 Dec. The weather is unusually warm in the valleys of Dagestan and the farmers are making full use of the fine days. Winter cereal crops and alfalfa have already been topdressed in dozens of rayons of the autonomous republic. The kolkhoses and sovkhoses are getting a lot of help from the fertility detachments of the republic agrochemical association. At the disposal of this new service are tractors, motor vehicles, lift trucks, other equipment, and also reserves of fertilizers. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 23 Dec 79 p 1] 10908

PENZA BEANS FOR FODDER--Penza. A new variety of fodder beans, the Penzenskiye-16, was cultivated at the oblast agricultural experimental station. The most important property of these beans is the good yield capacity of the green mass--250 quintals per hectare, and the resistance of the plantings to beating down and diseases. An author's certificate was awarded to breeder A.K. Kiselevaya. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 28 Dec 79 p 1] 10908

VITAMIN ADDITIVES--Tula. 27. Many farms in the oblast are successfully raising hydroponic greens for feeding livestock. Oats, barley, rye and corn are being planted. In Suvorovskiy Rayon the animal breeders at the Kolkhoz imeni K. Marx daily harvest about 200 kilograms of valuable vitamin-rich fodder. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 28 Dec 79 p 1] 10908

FERTILIZED FIELDS IN TAMBOV--Tambov. The farmers of the oblast have put down a reliable foundation for the future harvest. They delivered to the fields 7 million tons of organic fertilizers, approximately four tons per hectare of plowed field. Winter wheat and rye have developed well on the richly fertilized field. [Text] [Moscow TRUD in Russian 6 Jan 80 p 1] 10908

SEED DISTRIBUTION--Vladivostok. A batch of seeds of fodder crops has been dispatched to farms of Sakhalin and Kamchatka. The Primor'ye Seed-Growing Station has become a major supplier of planting material for farms of the Far East. Already 700 tons of grass seed has been shipped for spring planting to kolkhoses and sovkhoses of Amurskaya, Kamchatskaya and Sakhalinskaya oblasts, and also Khabarovskiy Kray. Altogether 32 specialized seed growing farms are operating in the kray. [Text] [Moscow TRUD in Russian 3 Jan 80 p 1] 10908

SEED STORAGE--Khabarovsk, 20 Dec. Seeds of grain crops for next year's harvest have been completely laid in for storage by the kray's sovkhozes and kolkhozes. They are all of high quality: 90 percent are first and second class. In the spring the grain fields will be planted only with regionalized varieties, for instance "Dal'nevostochnaya-6" wheat, a product of breeding by local scientists. This variety is resistant to beating down and water-logging, which is especially important under the conditions of the Amur region. Also the yield capacity from each hectare is 3-5 quintals above the standard. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 21 Dec 79 p 1] 10908

FERTILIZERS EFFECTIVE--Yaroslavl', 20 Dec. The farmers of the Borisoglebskiy "Novyy put'" Kolkhoz covered by two-fold the fourth-quarter assignment for bringing organic fertilizers to the fields. Leaders in the oblast competition are the workers of the whole rayon, who were the first to complete the delivery of organic fertilizers to the fields to the credit of this year's plan. Gaining high rates from the very start of the campaign for fertility was aided by the use of large-group utilization of equipment for delivery of the fertilizers. This made it possible to operate on a large scale, to raise labor productivity sharply. The experience of the Borisoglebskiy farmers is being widely applied in other rayons of the oblast. It has been decided to put about four and a half million tons of organic fertilizers under the future yield--almost 1.5-fold more than last year's amount. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 21 Dec 79 p 1] 10908

HURRICANE IN YAKUTSK ASSR--Tiksi, Yakutsk ASSR, 13 Dec. A southeastern cyclone raged for about a week in the region of the Arctic settlement of Tiksi. At times its velocity reached 47 meters per second. The deer herds and hunter's brigades, warned in advanced by radio, waited out the bad weather in safe places. On the streets of the settlements of Bykov mys, Taymylyr, and Tiksi, where the strongest snow squall occurred, the height of the snow drifts reaches the second floor of buildings. "During the hurricane the stores and all domestic services operated on a normal regime," the TASS correspondent was told by the chairman of the Bulunskiy Rayon Council of People's Deputies, M.F. Chub. There was an uninterrupted supply of water and electric power to the people, and heat was maintained in the homes. Today the settlement of Tiksi has gone back to its normal way of life. The polar aviation aircraft have renewed their normal flights to remote villages, to the pasture corrals of the toilers of the oceanside tundra. The sailors have begun to free the ships in the bay from the ice. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 14 Dec 79 p 4] 10908

FAR EAST DECEMBER RAINS--Khabarovsk. A thaw unusual for December occurred on the Far Eastern coast. Strong rains fell on the morning of 20 December in the southern rayons of the kray. Such a phenomenon has not been recorded by the local weather service in all 80 years of its existence. By the middle of the day the cyclone reached the central rayons and caused strong blasts of wet snow. The gusts of wind which reached 20 meters per second are already calming down. But coming after the first one approaching the coast is a new powerful cyclone, generated in the Sea of Japan. As was reported in the Far Eastern Administration of the Hydrometeorological Service, it can cause heavy snowfalls on the coast of the Tatar straits and the Sea of Okhotsk. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 21 Dec 79 p 4] 10908

EXTREME COLD--Yakutsk. Meteorological stations and taiga posts of Yakutia yesterday recorded a temperature of minus 62 degrees in the localities of Sukhan, Chon, and Shologontsy. Sixty-degree frosts have struck in a group of Vilyuysk rayons. And in the center of Leninskiy Rayon, in the settlement of Nyurba the freezing temperature of 62 degrees at night and 57-59 during the day continued for the whole week. Located on the territory of this rayon are the largest animal breeding farms in Yakutia. As was related to TASS correspondent D. Busyakin by the chairman of the executive committee of the rayon council of people's deputies N. Lytkin, it was necessary for the rural workers to manifest a great deal of selflessness and perseverance so that the impact of the severe frosts would not damage the farms. Despite the freezing temperatures, the systems for supplying the public with water, heat, fuel and electric power are operating without interruption. [Text [Moscow TRUD in Russian 6 Jan 80 p 4] 10908

SMOLENSK FERTILIZING WORK--Smolensk. More than 300 specialized detachments are engaged in delivering organic fertilizers in the oblast. The machine operators have high-powered tractors and motor vehicles at their disposal. Where roads are lacking, used instead of tractor trailers are metal sheets. The composts are taken out on them. Put under next year's harvest was 2.5 million tons of organic fertilizers, almost three-fold more than last year's amount. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 3 Jan 80 p 1] 10908

PLOWING SNOWY FIELDS--Petropavlovsk, Kazakh SSR. Frrmers of Presnovskiy Rayon have cut the snow banks on the whole grain field, exceeding 100,000 hectares. Wide-swath units helped to speed up the snow plowing. Two "Kirovets" units were joined on one "team." They haul seven snow plows at once. The width of the barrier zone left by them is about 50 meters. The output of the machine operators has increased 1.5-fold. Many farms are using this technology in Severo-Kazakhstanskaya Oblast. Snow banks have been cut already on a million hectares of plowed field. Mass-scale snow retention is being performed by farms of the northern and also the eastern oblasts of Kazakhstan. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 3 Jan 80 p 1] 10908

HIGH-YIELD SEEDS--Saratov. Farmers of Saratovskaya Oblast have completely laid in the seeds for spring fields amounting to 5 million hectares. This year the grain field will be planted basically with graded high-yield seeds from local breeding. Coming to replace the well-known "Saratovskaya-38" and "Saratovskaya-36" spring wheats is a still more reliable one, "Saratovskaya-46." The spring plot of "Krasnokutka-6" [illegible] wheat will also be larger than last year's. [Text] [Moscow TRUD in Russian 8 Jan 80 p 1] 10908

PREPARING HIGH-YIELD SEEDS--Stavropol', [illegible] Jan. Kolkhozes and sovkhozes of Predgornyy Rayon have prepared high-yield seeds which meet the requirements for first class for the spring fields, the earliest in Stavropol'. It was not easy to create the necessary reserves of first-class planting material for the spring under the conditions of the Stavropol' foothills. Prolonged hot dry winds did not make it possible here during the past summer to gather full-weight, well-formed seed from the seed plots. However repeated preparation of it on grading and cleaning machines insured success. The farms of Shpakovskiy, Georgiyevskiy and Aleksandrovskiy rayons are completing the preparation of planting material for loading into the seeding machines. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian [illegible] Jan 80 p 1] [illegible]

SNOW RETENTION WORK--Lipetsk, [illegible] Feb--The snow that has fallen is making it possible for the oblast's kolkhozes and sovkhozes to accumulate moisture and on their fields. This work is being carried out at a maximum tempo on farms in Terbunskiy Rayon. Recently, snow ridges were arranged on 15,000 hectares here. Very tense work is being performed by the machine operators of the Rodina Kolkhoz, where the leader in the socialist competition is tractor operator N.S. Kvantsev who, operating a K-700 machine, is retaining snow on an area of 300 hectares on a daily basis. The farmers in Dolgorukovskiy Rayon are presently carrying out their work in an efficient manner. They are arranging their snow ridges crosswise to the slopes, so as to prevent the spring run-off from pouring down into the hollows. The best work is being performed by machine operators V.P. Afanas'yev and I.I. [illegible] at the Vernyy Put' Kolkhoz. They have already completed snow plowing work on more than 300 hectares. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 3 Feb 80 p 1] 7026

OMSKAYA OBLAST SOWING CAMPAIGN--Omsk, [illegible] Feb--The farms in Omskaya Oblast have commenced preparing their work plans for the spring sowing campaign one month earlier than usual. This is the result of the complex nature of the agricultural-technical situation: owing to the fact that the autumn campaign was delayed by weather conditions, it was not possible to complete the autumn plowing plan and a large quantity of straw was left uncollected. The work plans of the farms are presently being reviewed in the oblast agricultural administration. The equipment repair work is being carried out at an accelerated tempo and the seed is being prepared. Repeated snow retention work is being carried out in many rayons. The traditional training for agronomists will commence on 5 February. This year it will be conducted on the basis of a 5-day program at the Siberian Scientific Research Institute of Agriculture. The field technologists will listen to lectures delivered by leading scientists and experienced production workers. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 2 Feb 80 p 1] 7026

WINTER MOISTURE RETAINED--Yoshkar-Ola, [illegible] Feb--The farmers in the Mari ASSR are making intense preparations for the spring sowing campaign. In addition to repairing their agricultural equipment, moving organic fertilizers out onto the fields and applying lime to the soil, they are also storing away winter moisture. True, in some rayons, particularly in the southern and western portions of the republic, the snow cover is more scanty than that of last year. But in those areas where there is sufficient snow for arranging snow ridges, the machine operators are working at a high tempo. For example, in two northeastern rayons -- Sernurskiy and Mari-Turekskiy -- snow ridges have already been prepared on an area of 20,000 hectares. In all, the Mari grain growers will carry out snow retention work on almost 200,000 hectares. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 2 Feb 80 p 1] 7026

KAZAKHSTAN MILLET CROP--Alma-Ata, 11 Jan--Sufficient quantities of high-grade locally produced seed are being made available for all of the millet fields in Kazakhstan, which this spring will be increased to 2 million hectares. The specialists of the Kazsemprom Association have completed their inspection of the seed. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 12 Jan 80 p 1] 7026

SNOW PLOWING WORK--Przheval'sk, 15 Jan--The machine operators in Issyk-Kul'skaya Oblast -- the principal grain area of Kirgizia -- have moved their snowplows out onto the fields. The farmers in Tyupskiy and Ak-Suyskiy rayons have accumulated rich experience in moisture retention work. The deep plowing of snow layers is being carried out here, crosswise to the slopes and in a spiral manner, so as to protect the snow against weathering in a reliable manner. The oblast's grain growers expect to obtain five additional quintals of grain per hectare as a result of this winter accumulation of moisture. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 16 Jan 80 p 1] 7026

CONTRIBUTION BY PLANT BREEDERS--Alma-Ata, 15 Jan--The plant breeders of Kazakhstan have created a strong base for obtaining high yields of strong and durum varieties of wheat. On farms in the virgin land zone, work has already been completed on the preparation of the seed for new regionalized varieties, which for the very first time will be planted on more than five million hectares. It is expected that each such hectare, following the replacement of earlier grown varieties, will furnish an increase in yield of from 3 to 5 quintals of grain. Eleven new grain crop varieties, developed by scientists at the All-Union Scientific Research Institute of the Grain Economy (city of Shortandy in Tselinogradskaya Oblast), will be regionalized this year. This includes first of all the Tselinnaya-20 wheat variety, which produces large grain having a raised protein content, and also the Pirotriks-28 wheat variety. Last year the Plant Breeding Center of the institute turned over several promising varieties for state strain testing -- this number of grain crop varieties was almost the same as the entire number tested during the past 5-year period. [Text] [Moscow SEL'SKAYA ZHIZN in Russian 16 Jan 80 p 1] 7026

PREPARATION OF SEED--Donetsk, 19 Jan--The oblast's farmers have completed their purification of sunflower seed 1 month earlier than last year. The farms have commenced the chemical disinfection of the seed. The seed is being stored in an exemplary manner in all areas. Powerful heat generators and drying units are ensuring the microclimate required in the storehouse facilities. The seed is undergoing special treatment aimed at raising the germinative capacity and it is also being graded. Experience has shown that "heavy-weight" seed furnish an increase in yield of up to 3 quintals per hectare. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 20 Jan 80 p 1] 7026

SOIL FERTILITY IMPROVEMENT WORK--Ordzhonikidze, 19 Jan--Fertility brigades are at work out on the fields in the North Ossetian ASSR. Approximately 70,000 tons of organic fertilizer have already been moved out onto the fields in behalf of this year's harvest and a top dressing of mineral fertilizer has been applied to a portion of the winter crops. The farms are employing powerful equipment in their campaign aimed at improving the fertility of the fields. The machines are being operated in large groups and this is ensuring a high tempo for the transporting of the mineral fertilizers. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 20 Jan 80 p 1] 7026

FIRST CLASS SEED DELIVERIES--Ordzhonikidze, 31 Jan--The seed grading plants in the North Ossetian ASSR have satisfied, ahead of schedule, the requirements of the farmers in the nonchernozem zone, the Volga region, Altayskiy Kray, Siberia and the Far East. The last batch of first class seed was sent off today. In all, the farms in these regions have already been supplied with more than 32,000 tons of high quality standardized grain. All of the seed was checked for germinative capacity and purity, treated with chemicals and packed in moisture-proof packaging. Each day, freight cars containing high grade and hybrid corn seed depart the spur tracks of railroad stations throughout the autonomous republic. The seed will be supplied to 36 oblasts, krays and republics throughout the country. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 1 Feb 80 p 1] 7026

SNOW RETENTION OPERATIONS--Tselinograd, 31 Jan--Each morning the tractor motors are started up and the snowplow operators move their units out onto the fields. In addition to other winter agricultural measures, the farmers are attaching special importance to the carrying out of snow retention work. This work has been carried out on 2 million hectares on farms throughout the oblast. By the end of each day, snow ridges have been shaped on 100,000 hectares. Based upon its operational results for the past year, the Krasnaya Zarya Kolkhoz in Marinovskiy Rayon has been awarded the title "Farm of High Farming Culture." Its workers obtained 21 quintals of grain from each hectare and successfully fulfilled their grain 5-year plan. "The maximum accumulation of snow out on the fields played an important role with regard to obtaining high yields" stated the chairman of the kolkhoz board T.B. Kombaturov, "We are attaching great importance to this agricultural measure at the present time. The machine operators are completing their accumulation of snow in the first track. The snow ridges are increasing in number on the planting areas of the Denpropetrovskiy Sovkhoz in Krasnoznamenskiy Rayon, the oblast's largest sovkhoz. A wide-span coupling consisting of seven snowplows is used here for the snow retention operations. It is pulled across a field by two "Kirovets" tractors; its operating width is 17 meters. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 1 Feb 80 p 1] 7026

NEW VARIETIES OF CROPS--Odessa--The Odesskiy-46, Oksamit and Zimran varieties of barley, bred under the direction of the well known plant breeder, Academician P.F. Garkaviy, have proved their worth on fields in Odesskaya Oblast and other southern oblasts. A new variety of winter barley, Yarna, is presently being added to the list of regionalized varieties. It underwent production testing on fields throughout the oblast and it produced a considerable increase in cropping power in all areas. A group of scientists from the All-Union Plant Breeding and Genetics Institute, headed by the chief of the Department of Plant Breeding for Forage and Pulse Crops A.I. Bereshchaka, proposed a new variety for use by the practical workers -- the Topaz variety of peas. Its cropping power is 3-8 quintals higher than that of the standard variety. Last year, the first domestic sunflower hybrid, Rassvet, developed by a group of plant breeders at the All-Union Plant Breeding and Genetics Institute under the direction of V.V. Burlov, was grown on some farms in Bolgradskiy and Tarutinskiy rayons. Tests have shown that this hybrid furnishes more than 30 quintals of high quality oil-bearing seed per hectare. Similar to the Zherebkovskiy-90MV silage crop hybrid, it has been recommended for regionalization. The highly productive alfalfa variety Zarnitsa is considered to be very suitable for growing on irrigated lands. Next year these new varieties will make their appearance on the fields of many farms throughout the oblast. [Text] [Kiev PRAVDA UKRAINY in Russian 11 Jan 80 p 3] 7026

NEW REGIONALIZED VARIETIES--Alma-Ata--The farms in the virgin land zone of Kazakhstan have completed their preparation of seed for new regionalized varieties. This year, these varieties will be sown for the very first time on an area of more than 5 million hectares. Each such hectare, following the replacement of varieties grown earlier, is expected to furnish an increase in yield of from 3 to 5 quintals. [Text] [Minsk SEL'SKAYA GAZETA in Russian 16 Jan 80 p 1] 7026

NEW WINTER WHEAT VARIETY--Odessa--The new winter wheat Odesskaya Polukarlikovaya is marked by high cropping power and vitality. For the first time in domestic practice, it was created by scientists of the All-Union Plant Breeding and Genetics Institute for the country's southern arid zones. This new variety has been regionalized in many oblasts of the Ukraine and it has undergone successful testing in Krasnodarskiy Kray, Central Asia and in the Kabardino Balkarsk ASSR. This year, dwarf wheats will be grown on approximately 20,000 hectares of wheat fields throughout the country. [Text] [Minsk SEL'SKAYA GAZETA in Russian 16 Jan 80 p 1] 7026

CSO: 1824 END

END OF
FICHE
DATE FILMED

March 12, 1980

Debbie